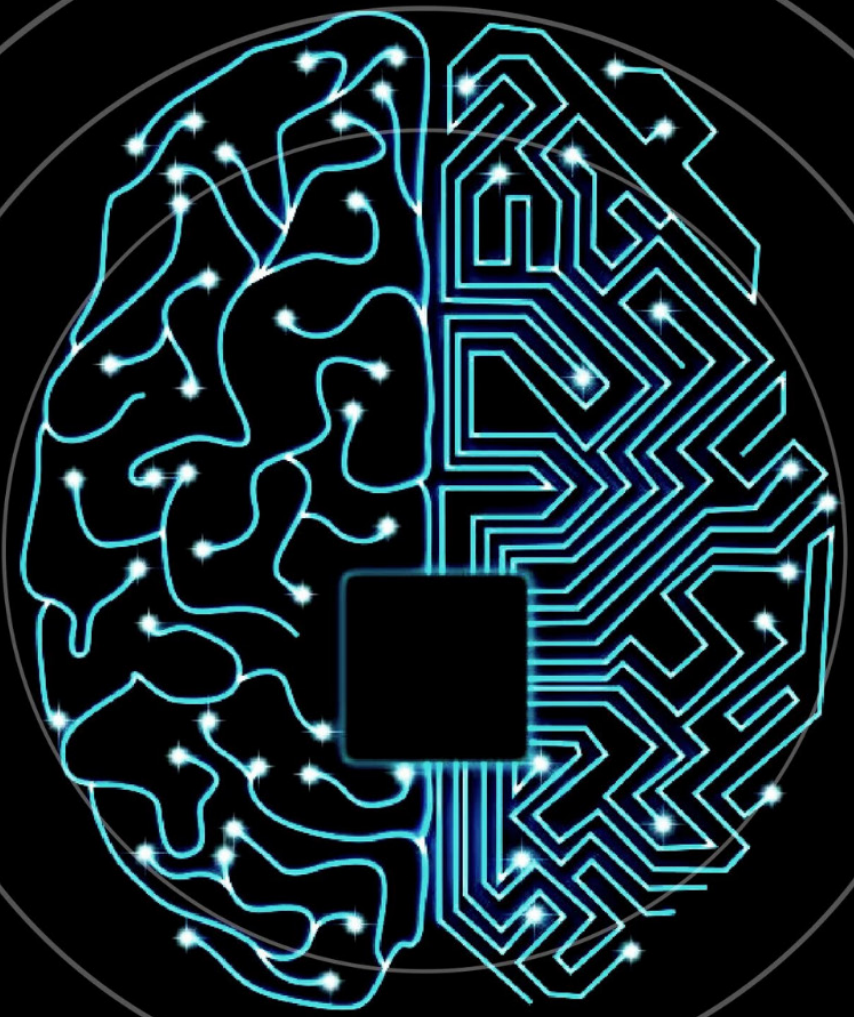
NEWCOMB TECH IN MIND



The Zine of Newcomb Institute's Technology Initiatives

Issue No. 3 | 2019-2020

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MESSAGE FROM THE EDITOR

April 24, 2020

This year, Newcomb Institute's technology-minded students have experienced many changes. I am filled with a sense of pride as I reflect on these students' accomplishments during the past nine months. Individually and collaboratively, they consistently have shown their resiliency and integrity when asked to rise to a challenge. They met many goals over the year while balancing their classes, work, fun, and circumstances beyond their control. Over the summer of 2019, Newcomb Institute moved its operations to the third floor of the Commons. Interns arrived on campus to work in a new lab and office. Much of these students' labors went into setting up the Commons, making our systems work, and improving upon our programs' core values in this new space. By March, however, in response to the COVID-19 pandemic, we had to leave Tulane's campus and work from our homes scattered across the country. Our interns met the challenge of keeping communication channels open while working remotely. They not only continued to work during the crisis but made significant progress on all of their projects. Their motivation continues to inspire me throughout this journey.

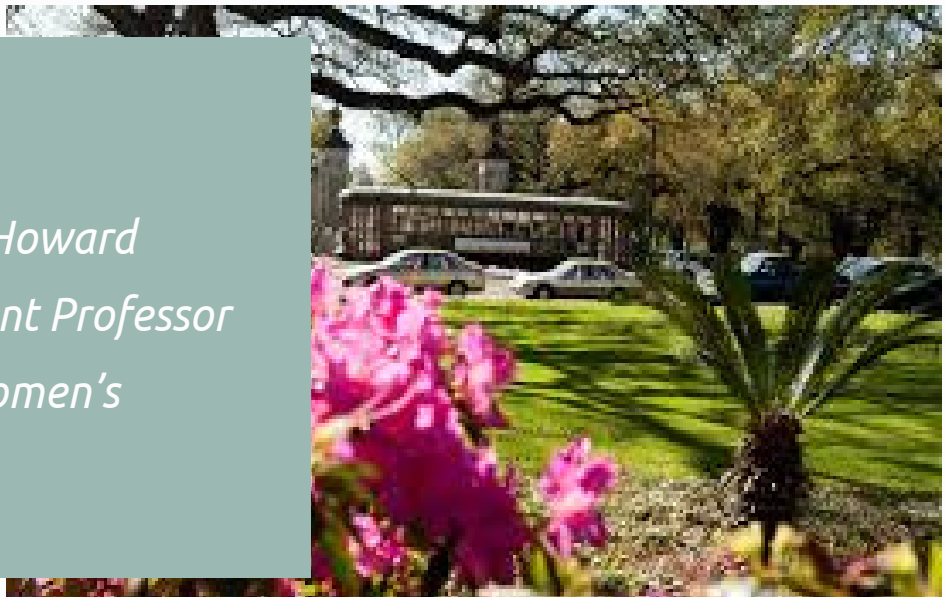
This year, the Digital Research Internship program worked on the digital projects of ten Tulane faculty members. The projects, ranging in skill and needs, included database management, web design, digital archiving, and digital publishing. Under the guidance of Addie Jasica, the product developer, they set team goals early in the academic year to focus on communication and collaboration. This team spirit, as seen through their weekly support of each other, served them well, especially when working remotely.

I also relied heavily on the Information Technology team to help Newcomb Institute transition into our new space. The team grew quickly during the Fall semester to meet the unique needs of the Commons. The interns took on new challenges such as providing technical support for four event spaces, creating IT manuals and how-to guides, and maintaining shared computers. When we moved to remote work, this team quickly joined with other Newcomb Institute student workers to work on digital projects such as building the new Sophie Lab website and curating digital content through research on various Gender and STEM topics. Though I know that they worked hard on these projects, they made this transition look effortless.

Newcomb Institute also provided numerous grants and funding opportunities for students to pursue experiential learning in STEM. Our Gender and STEM grantee (formerly HASTAC scholar), Keira Rosner, produced her own documentary on applying the Bechdel test to senior capstones at Tulane University. The quality of her final project illustrates her dedication and the two years of hard work she took to see the film to completion. I also accompanied seven undergraduates to the Grace Hopper Celebration for Women in Computing conference, where they took advantage of the job fair and panels to learn more about the technology industry. Similarly, the Society of Women Engineers student group supplemented funding from Newcomb Institute with their own fundraising to attend their national organization's annual conference and provided numerous events to support their community at Tulane. The Women in Technology student group met their goals to increase their awareness around campus through several interactive technology workshops and saw an increase in their membership.

The following pages of this zine presents a portfolio of technical work and digital research completed by undergraduates at Newcomb Institute. It includes special interest pieces and posters that represent the hours that students spent conducting training, research, experimentation, and collaboration, while embodying feminist leadership in their technical communities at Tulane University. May they all have bright futures ahead of them!

Sincerely,
Dr. Jacquelyne Thoni Howard
Administrative Assistant Professor
Of Technology and Women's
History



THE

DIGITAL RESEARCH INTERNSHIP PROGRAM

The Digital Research Internship Program provides undergraduates with an opportunity to obtain a skillset and diverse portfolio in technology. Undergraduates, working on a Scrum team, receive tangible experience in technology and feminist leadership while working on the digital projects of Tulane faculty in the humanities and sciences. This paid internship supplements students' majors and minors when seeking employment or prestigious technology internships.

meet the 2019-2020 digital research interns

Addie is a senior finishing up her Computer Science and Public Health majors to graduate this May. She is originally from Lake Forest, IL and could not have been happier to spend the last few years in the warmth of New Orleans. This is her third year as a member of the DRI Program and is honored to serve as the 2019-2020 Project Manager working closely with the faculty clients, our Scrum Advisor, and the rest of the team. When she is not sitting in front of her laptop, you can find her dancing in the McWilliams building, teaching fitness classes, or watching indie films.

ADDIE JASICA
Product Developer

Alexandra is a junior from Montclair, New Jersey, majoring in English with a concentration in Creative Writing and minoring in Management, Economics, and International Development. Through the DRI, she has been able to combine her love for the humanities and technological innovation, to further explore the expanding digital landscape and its impact on storytelling and equitable access to information. Alexandra enjoys writing poetry in her free time, and hopes to continue her work as a "storyteller" upon graduation, within the fields of UX writing, communications, and marketing.

ALY GREENGRASS
Development Intern

Lindsay is currently a junior at Tulane, originally from Nashville, TN. She is double majoring in Art History and Computer Science, and minoring in Arabic. This is the second year Lindsay has worked on the Digital Research team, and she loves the agile structure and support that it provides. Outside of the DRI Lindsay is involved in WTUL, the on-campus radio, and GCLP, a club that teaches kids coding. In the future she hopes to go to law school to specialize in international law, with a focus in human rights and freedom of speech violations in regards to art.

LINDSAY HARDY
Development Intern

Rosalind is a senior from Laramie, Wyoming. At Tulane, she is double majoring in computer science and linguistics, with a minor in philosophy. This combination of studies aligns with her interest in how language shapes our thinking, and how we can extend that knowledge into technological applications. When she's not coding, Rosalind is either rehearsing with the Tulane University Marching Band or leading the Women in Technology student organization, where she serves as President.

ROSALIND KIDWELL
Development Intern

Emily is a sophomore from Nashville, Tennessee, majoring in French and Computer Science with a minor in IT. She has loved being able to apply her computer science skills to other areas of study and learning more about digital humanities. The DRI gives her the perfect opportunity to explore her other academic interests through technology. In her free time, she enjoys exploring New Orleans, learning Adobe Illustrator, and cheering for the Tennessee Titans.

EMILY O'CONNELL
Development Intern

Mary is a junior, majoring in Biomedical Engineering, Computer Science, and Mathematics. She is passionate about medical devices and technology. Through the DRI, she learned new skills such as WordPress, GIS, and digital design. The thing she loves most about the DRI is working on a Scrum team. Outside of work and school, she enjoys badminton and is nationally competitive in karate.

MARY PWINT
Development Intern

Rena is a sophomore majoring in Economics and Computer Science. She is from Belmont, Massachusetts, and hopes to work in software design and marketing after graduation. Rena became interested in programming after taking a high school computer science class with an amazing teacher. Besides DRI, Rena is a co-outreach chair for Women in Technology, and a TIDES Peer Mentor. Rena loves the DRI because she has learned a variety of practical and technical skills while getting to know older students who have parallel interests.

RENA REPENNING
Development Intern

Piper is a sophomore studying chemical engineering with a minor in math and is on the pre-medicine track. The DRI provides her with a great opportunity to apply the analytical problem-solving skills she develops in her engineering classes to real world technical projects. At Tulane, Piper is a member of Theta Tau, the national engineering fraternity, she DJs a radio show for WTUL, and volunteers as a swim instructor for Swim4Success.

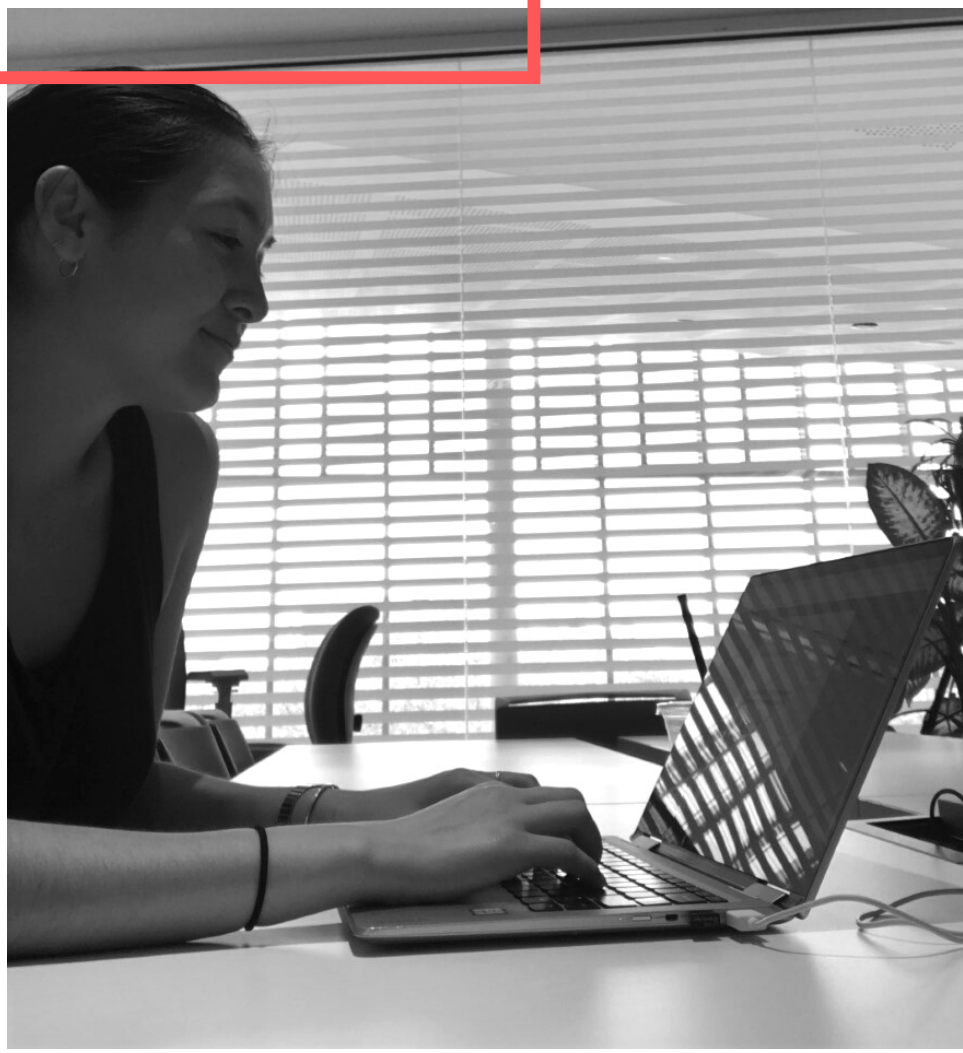
PIPER STEVENS
Development Intern

Gabriela is originally from New Orleans, Louisiana. She is a senior studying Sociology and Computer Science, with a minor in Psychology. Through the DRI and her participation in Women in Technology, she has had the opportunity to explore her passions at the intersection of technology and psychology. She is interested in privacy rights and the ethics of future technological developments. She is looking to apply all the skills she has learned to help her in a UI/UX career.

GABRIELA TARAS
Development Intern

OUR PROGRAM AND ITS IMPACT

By Addie Jasica
2019-20 Product Developer



Most people are probably familiar with the notion that one solid internship can often lead to a job after graduation. However, those unfamiliar with the technology industry may not know how competitive, well-structured, and necessary these internships really are. Large technology companies must parse through thousands of resumes, and to do so, understandably (and possibly unfairly) employ their own document parsing algorithms which look for keywords and skills on a resume. This is just one example of barriers to these prestigious internships and why many students, including myself, have applied to countless jobs online and never heard back.

In order to increase accessibility to internships that help lead to jobs in the tech industry, the Digital Research Internship Program at Newcomb Institute is a low stake, paid job opportunity. Interns learn industry standard software and methodologies, gain experience working on multiple projects, and cultivate relationships with faculty across the university. While this program has been around for many years, Dr. Jacquelyne Howard of Newcomb Institute radically restructured it in fall 2018, much to the benefit of both the students involved and the outcomes of the projects.

THE 2019-2020 TEAM

(not pictured: Lindsay Hardy, Emily O'Connell)

The new structure adopts a version of the project management methodology called Agile/Scrum, which is the technology industry standard. In summary, this methodology works as follows. Teams have a brief meeting daily to update the team on progress and blockers in their work. Every two weeks, the developers, product owners, and stakeholders come together to view completed work and evaluate the state of the project. This methodology promotes team work, constant re-evaluation of goals and scope, collaboration, project coordination, and flexibility.

The 2019-2020 cohort of the DRI Program has eight members, seven of which work directly on the projects. I serve as the product developer, acting as a liaison between the faculty and the rest of the team. Through the internship, we work with faculty and staff from all different backgrounds including English, Economics, Political Science, History, and more. As someone who has served as a team developer and the Product Developer, I am so thankful to have gained experience in multiple roles of Agile/Scrum.

This program has really proven to me the usefulness of the Agile system and the implementation we utilize called Scrum. Scrum is used at most software companies, and I've been asked to talk about my experience with it at multiple interviews. Our implementation of Scrum takes inspiration from its ideas of teamwork, providing updates to the group, and trading off of projects among group members. Each semester we have over 8 projects of various domain and scope and each week the team breaks down that project into weeklong tasks. Team members then claim which task they would like to be assigned for the week with the goal of learning about as many of the projects as possible.

This program secondly, but more importantly, provides the interns with exposure to various software and technology stacks. Personally, throughout my three years I have gained experience with MySQL databases, Adobe Photoshop/InDesign, Premiere Pro video editing software, web design and WordPress websites, Trello, version control and cloud file management, and geographic information system mapping. The variety of projects worked on, technologies used, and personalities seen in the group offer ample things to talk about during both technical and behavioral interviews.

By creating opportunities for students to learn and gain experience with a program that mimics the technology industry, Dr. Howard has created a pathway for students to gain industry internships and ultimately industry jobs. I am an example of someone who followed that path. The Digital Research Internship Program has given me so much —meaningful projects, industry standard tools/frameworks, projects and experiences to learn from and talk about during interviews, and the ability to work with and lead my peers. I was able to join a community of brilliant interns. I was able to gain an immensely useful summer internship. I learned about the role I ultimately wanted to take a full-time position in.

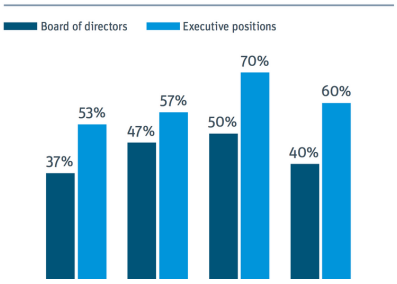
TECH EXEC POSITIONS HELD BY WOMEN

By Lindsay Hardy

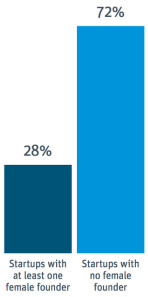
GENDER INEQUALITY IN THE TECHNOLOGY FIELD STARTS FROM THE BOTTOM AND GOES ALL THE WAY TO THE TOP. IN RECENT YEARS STUDIES HAVE SHOWN THAT 18% OF TECH EXECUTIVE POSITIONS ARE HELD BY WOMEN. THESE WOMEN WHO HOLD THE POSITIONS NORMALLY COME FROM OUTSIDE OF THE TECH FIELD AND ARE NOT TECHNOLOGY INDUSTRY EXPERTS BEFORE THEIR INVOLVEMENT IN THE TECH WORLD. THIS LIKELY COMES FROM THE FACT THAT THERE IS A SMALL PROPORTION OF WOMEN WHO GRADUATE WITH COMPUTER SCIENCE DEGREES, WITH ONLY 18% OF COMPUTER SCIENCE GRADS IN 2017 BEING WOMEN. CONTINUALLY IT IS MUCH MORE LIKELY FOR A WOMAN OF A HIGH-RANKING POSITION AT A TECH COMPANY TO BE A PART OF THE HUMAN RESOURCES DEPARTMENT RATHER THAN SOFTWARE DEVELOPMENT OR ENGINEERING. THIS LACK OF FEMALE EXECUTIVES WITH TECH BACKGROUNDS STEMS FROM MULTIPLE DIFFERENT FACTORS.

STATISTICS ON FEMALE TECH EXECS

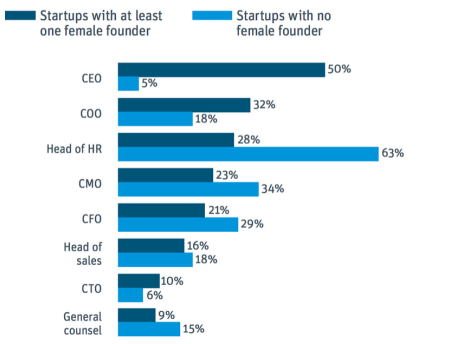
Women in a Leadership position



Percentage of startups with at least one female founder



Percentage of Startups with a Woman in an Exec Position



One of the major factors is the fact that most startups do not have high female involvement and are not comprised of women. In 2017 it was reported that only 5% of startup founders were women. Because of the lack of female workers from the beginning, there is a precedence set that it is not necessary or vital for women to be involved in a company in order for them to reach success. From these factors, as startups grow and become larger, it is less likely that a woman will fill an executive position, then if there was a woman who was a part of the startup since the beginning. Some say that the reason women are not involved in startups is because it is harder to fundraise when a woman is a member of the organization. This is clear from statistics on startups receiving funding from venture capitalists that $1.56 billion were invested in tech companies with female leadership while $58.2 billion invested in tech with male leadership. But this number is not to scale and does not account for the vast majority of startups that do not include women on executive boards. Rather than hurt fundraising, or a company's economy, it has been proven that Fortune 500 companies with at least 3 women in leading positions see a 66% increase in ROI.

Another factor that causes there to be a small number of female executives with tech backgrounds is the slow promotion process for women. This factor stems from the fact that women who are in tech companies are 3.5 times more likely to be over 35 and still in a junior tech position. This slow promotion correlates with companies working to diversify only enough to show some difference from before. Following this diversification process, the advocacy for women ends with the hiring process. Once women are in the company, they become a number for diversity statistics, and are not moving up in the company at the same pace as their male counterparts These small changes allow companies to publish reports stating that they have made improvements and are pushing forward, even though the reality of it is that the changes come at an alarmingly slow pace. Occasionally these reports are even modified, to make it seem like the company has put in more effort towards equality than they actually have. Some companies have even gone as far as photoshopping women into event photos to make their female involvement seem larger.

Through this exclusion of women in startups, as well as the slow process of promotion for women, it is a battle for them to reach the top. In order for these women to become noticed they must work 10x harder than their male counterparts and force their executives to recognize their worth. Sadly, as stated before, the goals that companies have put in place to promote women in the workplace, are not enough and can be easily worked around. To combat this major issue women must be consistently included in startups and recognized for their contribution to the success of companies and projects.

Built-In Bias:

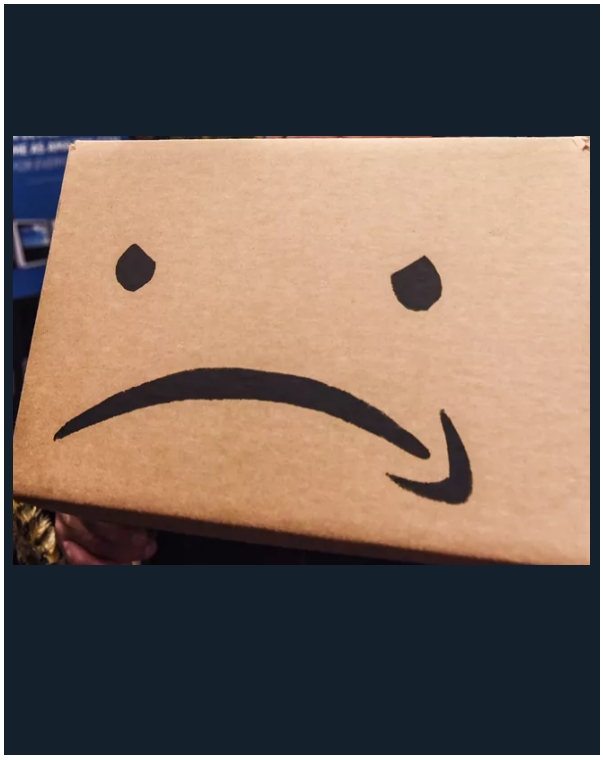
Algorithms that discriminate against women continue to appear on the market

Apple has made news with their release of the Apple Card, representative of a recent trend of big tech companies expanding their reach into finance and banking. However, the flurry of news around the release was not quite what they were hoping for, as reports of possible gender bias surrounding the card have come to light.

David Heinemeier Hansson, the developer of Ruby on Rails and a strong influence in the tech industry, announced on Twitter that he was approved with a credit limit 20 times as high as what his wife received. This is despite his wife having a better credit score and the two of them filing joint tax returns.

Another critic of the Apple Card was co-founder of Apple himself, Steve Wozniak. He was issued a credit limit 10 times that of his wife's, who also has no separate accounts or assets from him. Several Twitter users responded with similar situations, as many women are being perceived as worse credit risks than their husbands, even with their higher incomes and credit scores. This problem seems like it should be an anomaly. After all, an algorithm decides the credit limit issued, not a human with gender bias, so this shouldn't be happening, right?

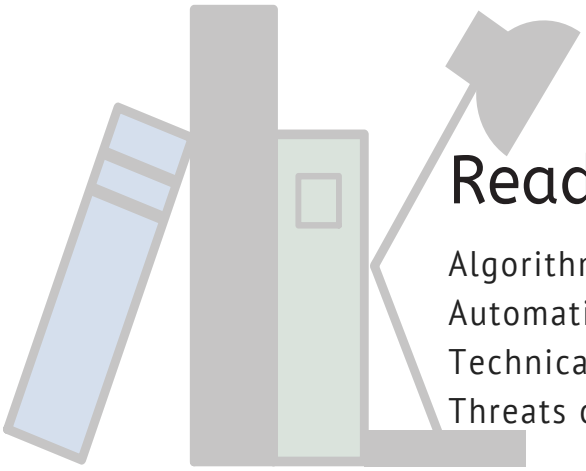
This understanding of algorithms is incredibly naïve and fails to acknowledge how such algorithms are even developed. No algorithm can write itself, and a goal of remaining objective by using an algorithm rather than a human judgement often overlooks this. Though the Apple Card is the most recent in the news, issues of gender bias in algorithms go well beyond just this case. Another big tech giant, Amazon, is guilty of discriminating against women in an algorithm they developed as a hiring tool.



Amazon's goal was to help automate the hiring process. Ideally, their product would be able to go through any resume submitted for a job posting and select the top candidates, saving time and effort. In practice, this algorithm ended up learning to favor male candidates, based on their differences in language, especially in hiring for technical jobs. Jobs. Given that the training set relied on successful past applicants and that there is an imbalance of men in technical fields, descriptions used by men in their resumes were deemed to be a higher quality than their female counterparts. Amazon eventually pulled the initiative completely after realizing it was failing so spectacularly.

The Bottom Line:

The common problem we see in these poorly designed algorithms is that they learn biases reflected in their training sets that are present as a result of preexisting social discrimination. They learn these biases and reinforce them. It's important that as we further rely on algorithms to do work for us, time and time again, they are failing to remove human biases. Instead, algorithms simply automate them.



Read More About It:

Algorithms of Oppression by Safiya Noble
Automating Inequality by Virginia Eubanks
Technically Wrong: Sexist Apps, Biased Algorithms, and Other Threats of Toxic Tech by Sara Wachter-Boettcher

THE DIGITAL DIVIDE

EMILY O'CONNELL

I can guarantee that you have used the internet today. Whether it be scrolling through Twitter to wake yourself up before your 8:00am, checking the weather to see what season it will be in New Orleans today, or streaming Spotify on the way to class, the internet has become a staple of everyday life. While it may seem like the internet is ubiquitous these days, being online is a luxury that many Americans live without. Rural America has become a broadband desert, with 58% of rural Americans classifying access to high speed internet a problem in their community, compared to 43% of people in urban areas and 36% of suburban residents.[1]

Income also strongly relates to internet availability, which further limits opportunities for low income households. Many people, regardless of geographic location, still don't have internet service simply because they cannot afford to pay the monthly bill. This is a major problem in our own community in New Orleans as well, with the city government reporting a large disparity in Internet access between wealthier areas and low-income areas, revealing that New Orleans ranks among one of the worst connected cities in the US.[2]

The difference in availability of high speed internet has deepened America's digital divide. Internet Service Providers (ISPs) seek to make a profit and are not financially motivated to invest the necessary funds to build the infrastructure needed to bring internet to millions of rural and low-income Americans. Massive ISPs, like Comcast, AT&T, and Verizon, hold an overwhelming share of the market, making it difficult for other, local companies to provide broadband for these rural areas.

The digital divide further alienates rural Americans, low-income households, and people of color by limiting their access to reliable high speed internet. Tribal lands in particular are severely undercovered, with only 47% of Native Americans who live on tribal land having access to high-speed internet.[3]

This disparity has major implications for those who do not have reliable internet connection, as so much of our life is conducted online. Not only are ISPs denying rural Americans access to entertainment commonly associated with the internet like Facebook and Netflix, but they are also limiting their access to national news sources, employment opportunities, and educational resources. The UN has declared Internet access a human right, and many people see it as the new electricity: a service that is a public utility that everone should be able to access.

The necessity of Internet access has become overwhelmingly apparent during the time of social distancing and distance learning because of the COVID-19 pandemic. For many students across the country, access to reliable Internet is essential for continuing their education in an online format while at home. School administrators and politicians trying to mitigate the impact of the virus on daily life cannot assume that every household in the country is well connected. This pandemic has exposed the severity of a national and global failure to provide the modern infrastructure that has become essential in the 21st century.

SO HOW CAN WE BRIDGE THIS DIVIDE?

One proposed solution aims to provide government incentives for ISPs to extend their coverage to these underserved areas, but similar programs have had limited results. Many politicians have plans to modernize our nation's infrastructure and expand government oversight of ISPs to ensure any grant money they receive is used effectively. Other plans advocate for breaking up the ISP monopolies and trying to bolster the effectiveness of community based companies through grants to develop public broadband networks.

While the federal government works on a plan to solve this problem nationally, one way to help end this inequality is by voicing your concern to your community. Local and state governments can work to devote resources to develop local solutions or work with outside community partnerships like the National Digital Inclusion Alliance or the Digital Literacy Alliance. Outside of policy change, another way to help is to spread the word about the digital divide. Despite this being a major, national problem with serious implications, few Americans even know that this is an issue for so many people. Advocacy and education are a great way to get this injustice the attention of all levels of government in order to ensure that we can come up with a viable and lasting solution.

In any case, it is essential that ISPs are held accountable and that companies stop leaving rural and low-income Americans behind in accessing such an essential service. It is time that we consider the internet to be the new electricity and work to expand it to every American household to ensure that the internet stays open and available for all.

> RESEARCHERS LEARNED THAT BETWEEN 23% AND 33% OF NEW ORLEANS HOUSEHOLDS LACK HOME INTERNET ... THESE FACTS MAKE NEW ORLEANS ONE OF THE WORST-CONNECTED US CITIES WITH LOW-INCOME RESIDENTS LESS LIKELY TO HAVE HOME INTERNET COMPARED TO WEALTHIER PEOPLE. [2]

1 *Anderson, Monica. "About a Quarter of Rural Americans Say Access to High-Speed Internet Is a Major Problem." Pew Research Center, September 10, 2018.*

2 *City of New Orleans. "ITI - Digital Equity Overview - New Orleans Digital Divide - City of New Orleans." New Orleans Digital Divide. Accessed February 10, 2020.*

3 *Hansi Lo Wang, "Native Americans On Tribal Land Are 'The Least Connected' To High-Speed Internet," NPR, December 6, 2018.*

Computing Nature

Rena Repenning, Digital Research Intern

Alan Turing

"The Father of Modern Computing"

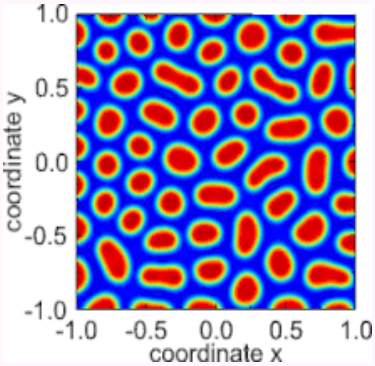
During his 42 years alive, Alan Turing changed how humans think about algorithms and Artificial Intelligence. Turing created the foundation of modern computing by drawing algorithmic patterns between science and nature. His work is still used in biology and many other fields today. For example, the "**Turing Instability**" theorem is used to describe patterns in everything from salt concentrations to the skin of animals. As he once told a friend, his work sought "to defeat **Argument From Design**", the idea that "for complex patterns to exist in nature, something supernatural, like God, had to create them" (NYT 1). Turing tested his ability to put realistic responses in a computer with the **Turing Test** as he laid the foundations for modern Artificial Intelligence.

As depicted in a 2014 movie starring Benedict Cumberbatch, Turing is regarded as a war hero for cracking Germany's Enigma codes. His machines and algorithms helped the allies interpret what were previously regarded as "uncrackable" codes. Although Turing brought many modern advances to Victorian England's society, he was still procesucted for homosexuality (which remained illegal until 1967). Turing and his partner admitted to a sexual relationship during an investigation of a burglary in their home. Given the choice of chemical castration or prison, Turing chose to remain a free man. Two years later he was found dead, lying next to an apple with only one bite missing. Cause of death was found to be cyanide poisoning; presumed to be suicide. Turing's death was not recognized by Britain until 2009 (NYT 3), in part because his discoveries were classified military information. Alan Turing is now known as "The Father of Modern Computing," but did not receive any honor during his time because of his sexuality. Oppression of LGBT+ communities thus caused one of the most genius scientists of Turing's generation to be gone far too soon.

A brief preview of Turing's most influential work:

Turing Instability Theorem

In math: *"If d > 1 then knowing only the stability properties of the constant coefficient linear systems of ordinary differential equations X' = AX and X' = BX does not allow you to determine the stability of the system X' = (A + B)X"* (CITE 2)



The Turing Pattern can be visualized, in simple terms, as chemicals clumping together as they mix. This theorem tells us that constant rates of change in a system do not add to the system's coefficient.

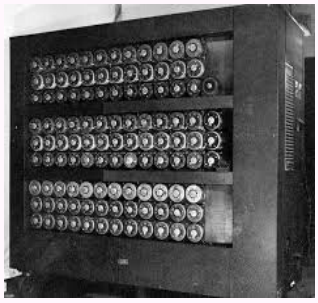
Turing Test

The Turing Machine was created in the 1930's, and performed a set of actions based on characters, fed into the computer on a tape. Turing's machine later evolved to code, instead of tape, as the method of transferring commands from human to computer.

Turing's UTM is a theoretical machine, able to be fed any, infinitely long tape and complete the set of actions. After parsing and executing the tape's instructions, the UTM "prints" output onto a tape. This is the same concept as stored programs that are sent to a processor, a fundamental concept in von Neumann architecture. Modern computers use John von Neumann's 1946 theory, which is built upon Turing's work.

Enigma Machine

Turing helped the allies win World War II by breaking the German's Enigma code.



Citations

https://www.nytimes.com/2018/05/08/science/alan-turing-desalination.html?action=click&module=RelatedLinks&pgtype=Articleh ttp://www.math.lsa.umich.edu/~rauch/256/turingexample.pdfhttps://www.nytimes.com/2019/06/05/obituaries/alan-turing-overlooked.htmlhttps://en.wikipedia.org/wiki/Alan_Turing#Personal_lifehttps://en.wikipedia.org/wiki/Turing_patternhttps://plato.stanford.edu/entries/turing-test/https://royal.pingdom.com/the-history-of-computer-data-storage-in-pictures/https://en.wikipedia.org/wiki/Universal_Turing_machine

NERI OXMAN

What Happens When We Design for Design's Sake

By Piper Stevens

Neri Oxman is an Israeli architect and designer pushing the boundaries of innovation and cross discipline intersectionality through her work at the MIT Media Lab. Oxman's approach to design aligns with the goal of the design lab which is to fill a gap in the MIT curriculum by focusing on the human-computer interface. Joi Ito, the head of the media lab sees the project as a place to explore outlandish ideas and find the intersection of art, sciences, and engineering by collaborating on ideas years ahead of their time. Oxman is originally from Haifa, Israel and received an architecture degree before moving to the United States. Her background extends far beyond this architecture degree, however, as she studied medicine before pivoting her focus to design as well as served as lieutenant in the Israeli Air Force as a young adult. Perhaps this diverse background of experiences or the necessity to be gutsy and inventive as a woman in the military gave Oxman the idea to reinvent traditional design conventions.

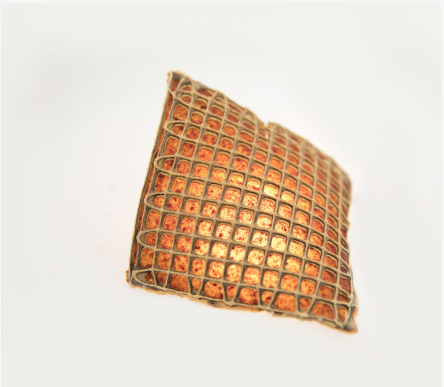
Oxman's approach to design stems from a skeptical analysis of conventional consumerist beliefs and ideas. These conventional beliefs stem back to the industrial revolution which introduced assembly line manufacturing and mass production of goods via assembly of individual parts. As a result, architects and engineers have been trained to view their outputs as assemblies of individual parts with unique functions. This thought process is counterintuitive to what is observed in nature: natural growth does not involve individual discrete pieces, rather it is characterized by millions of interconnected molecules and reactions that create intricate materials.

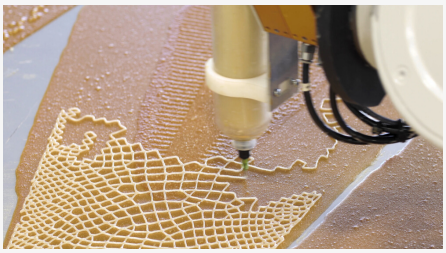
An example is human skin, a surface that is different on every part of the body and transitions gradually to adjust elasticity, moisture, and pigment across one continuous surface. Oxman strives to emulate nature in her design process by mining the intersection of growth and assembly. To accomplish this, Oxman focuses on the intersection of four distinct sects of design: computational design, additive manufacturing, materials engineering, and synthetic biology. Her group at the MIT Media Lab, Mediated Matter, assembles team members from a vast array of backgrounds including computer science, architecture, engineering, and neuroscience, to create a new field Oxman has termed bio-architecture.

Beyond creating a new design approach by melding four distinct fields, Neri Oxman takes a radical approach to the motivation of her designs as well. Many of Oxman's projects begin with no particular goal or problem to solve. Neri Oxman stresses the principles of designing for design's sake and discovering uses of her technology along the way. Her projects often start with little direction or constraints in mind. A library of experiments and interactions are created, allowing freedom for the project to go in a miasma of directions before the correct structure and direction are found. Often times, this leads to a product that is more complex and innovative than if it was constructed around a specific goal. This inventive approach to design emphasizes sustainability, cohesion, and Neri Oxman's ultimate goal of shifting from nature inspired design to design inspired nature.

PROJECTS

Aguahoja

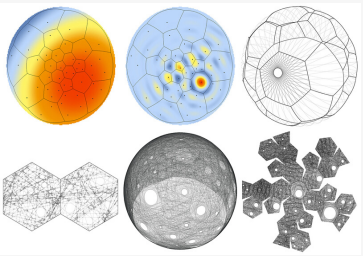


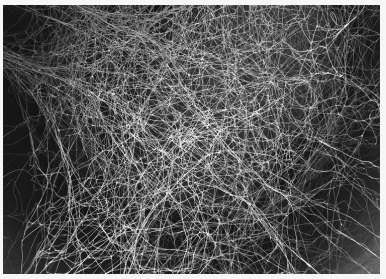


This instillation for the MOMA was designed from chitin which is the second most abundant biopolymer in the world. Oxman's team varied the chemical concentrations of chitin in solution to achieve an array of properties. A robotically controlled extrusion system with multiple nozzles was engineered to create a massive structure of recycled materials, and the air bubbles within the structure were used to hold photosynthetic materials able to convert carbon dioxide from the atmosphere into sugar. Not only is the material a sustainable plastic alternative, but when it degrades it will release nutrients that nourish marine life and soil. This project is a proof of concept for the use of chitin as a building structure for larger structures and buildings in the future.

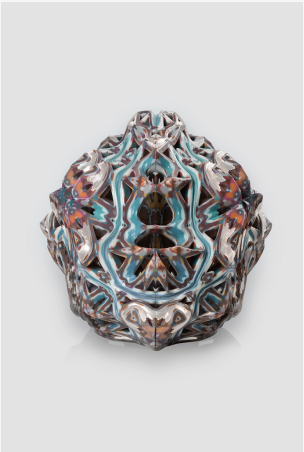
Silkworm Pavilion

The Mediated Matter team discovered that the structure of scaffolding presented to silkworms determines the structure of cocoon that the worms spin. The team designed and constructed a pavilion from synthetic silk that manipulated the light and pathways so that when thousands of silkworms were placed on the pavilion, they spun a cohesive structure. This project served to present a situation in which the natural resources of silkworms could be utilized without killing the silkworm itself. It has broader implications for the sustainable use of biological materials to construct large, complex structures without destroying the material source.





Vespers



This project explores the realm of wearable interfaces and the possibility of clothing garments that act as an external layer of skin and responds to environmental cues. Neri's team designed and produced a series of masks filled with microorganisms that produce the colors and patterns of the mask. The team was able to control the pigments released by the microorganisms to create designs on the masks. These masks are aesthetically beautiful and open the door to the possibility for living garments that interact with the people who wear them

SMART CITIES

BY GABRIELA TARAS

INTRODUCTION

Smart city initiatives are happening all around the world in cities such as Toronto, Madrid, New York City, Boston, San Fransisco, Amsterdam, Singapore, London, Copenhagen, Tokyo, Berlin, and Vienna. According to Frost and Sullivan, smart city experts, there are eight defining characteristics of a smart city: governance, energy, buildings, mobility, infrastructure, technology, healthcare, and citizen participation (2014). A smart city is not definitive, it is more a classification. The main goals are to make these cities 'liveable', sustainable, and faster at responding to emerging challenges (like natural disasters). Smart city initiatives include full immersion of technology, so before anything is fully implemented, they undertake a process of researching what communities need most. Tech giants, like Google, need to have a proof of concept reflecting the responsibilities, mission, goals, and roles for local areas. Ultimately the planning of smart cities creates an environment where citizens are encouraged to engage through use of technology to develop e-government and open data resources. In other words, cities need to be shaped by and for their populations. The Manchester City Council is composed of 22 public and private organizations working in partnership with Manchester City Council to research the potential expandability such as how quickly users will adapt and adopt the smart city ways to increase the public's involvement in city management.

TORONTO

Let me use Toronto as a case study where local government has partnered with Google. By adding Google Fiber as a new development for broadband internet, the sensors will help the city reduce crime, decrease traffic, and make the infrastructure more efficient. In addition, sensors would measure air quality, noise levels, weather patterns, traffic flows, and emissions for efficiency and health purposes. For example, this technology has already been implemented in Santa Cruz where data have been used to change their policing patterns further allowing for increased surveillance capacity.

This leads to questions about privacy: in a world where everything would be monitored there is worry of constant surveillance. Our policies have not caught up with regulations required for total submersion in smart cities. This also has the potential to lead to privately-owned public spaces, which would put policy decisions in the hands of private corporations. Sidewalk Labs and Google would be running Toronto. Google's original plan was to build on 90 acres fronting Lake Ontario, but Toronto committees and residents rejected this and will only allow 12 acres to be used in the project.

In return for investing in the area, Sidewalk Labs wants a share of property taxes, development fees and other benefits from the increased value of the land, which ethically could prove they are not interested in ethical concerns and more with the financial benefits.

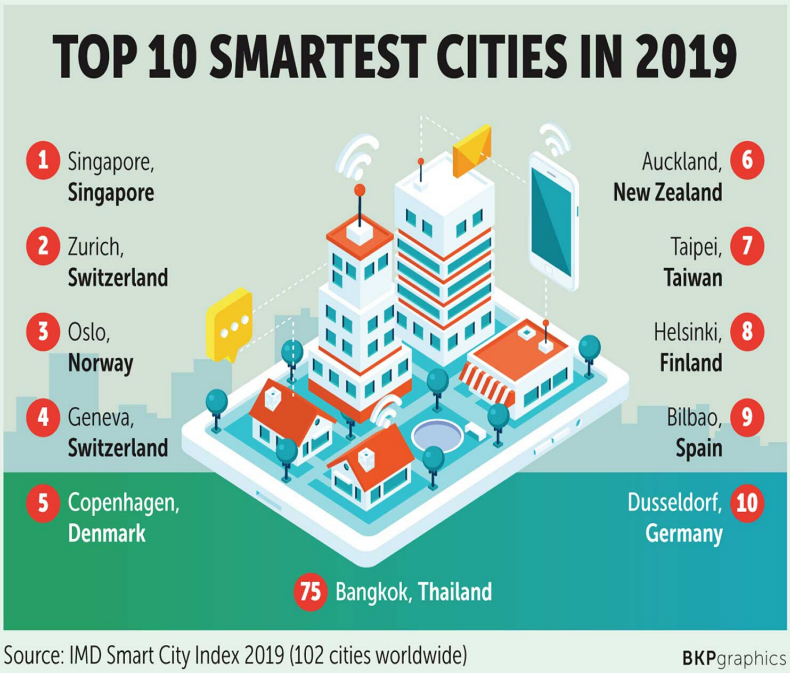
E-GOVERNANCE

E-Governance creates an online system to support e-participation to further shift to a direct democracy. Dubai has made private and public sectors accessible through the use of cellphones by digitizing government data including customer and business transactions. Hotspots have been created to contain government applications that are only accessible when someone is connected to them. Madrid, in partnership with IBM, has computerized management of public services such as garbage collection and recycling. It can further manage infrastructure of public spaces and designated green areas. Milan focuses on promoting sustainable architecture and improving energy efficiency in buildings. This will control streetlights, and ensuring that energy resources are evenly distributed throughout the city. Data analytics will calculate the energy to be put into each sector since a streetlight does not need as much wattage as trains or other forms of public transportation. Part of sustainable architecture also includes measuring greenhouse gas emissions. In the Stockholm “smart meters” have been installed into homes to measure energy consumption therefore billing accordingly and automatically. Smart city initiatives have also been preventing drinking water from being wasted on bathroom usage by improving the water pipes that produce a more sustainable living culture.

In turn, in Barcelona sensor technology has been implemented in the irrigation system so that the local gardening crews know when and how much water to give the local plants, predictive maintenance.

Part of a city’s infrastructure is traffic flow; sensors can now track mobility patterns creating maximum efficiency for traffic lights. An added advantage is the ability to change traffic lights to green for emergency vehicles driving through intersections.

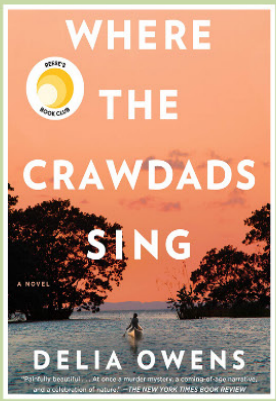
This allows ambulances, firefighters, and other emergency response units to reach their destination more efficiently by using GPS and traffic management software. Singapore allows public transportation tickets to be automatically charged to a single account so riders can pay with ease without monitoring different accounts- meaning access to public transportation would be practically cashless. To encourage citizens to use public transport apps they provide up-to-date notifications of schedules and routes. Other cities are playing around with further implementing sustainable, safe, and autonomous transportation for more efficient public transit. Functions of smart cities can, therefore, accelerate sustainable, cost efficient, and citizen-based governance.

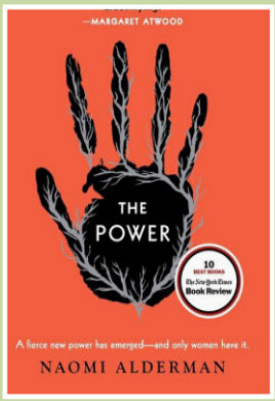


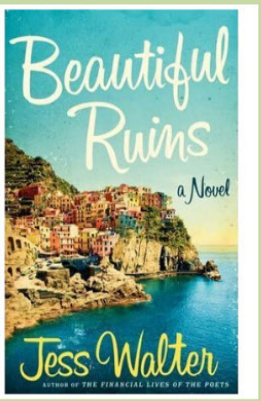
THE DIGITAL RESEARCH INTERNSHIP PROGRAM'S

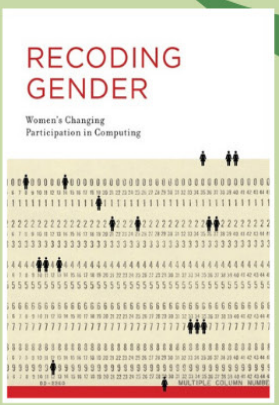
RECOMMENDATIONS

BOOKS



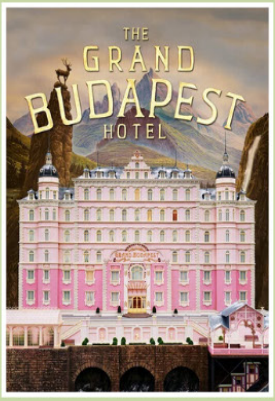






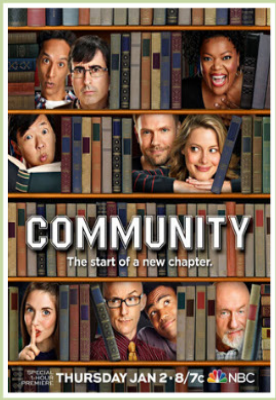
Where the Crawdads Sing (Delia Owens), The Power (Naomi Alderman), Beautiful Ruins (Jess Walter), Recoding Gender (Janet Abbate)

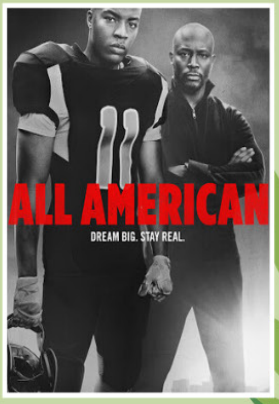
MOVIES



The Grand Budapest Hotel (2014), Ex Machina (2014), The Great Hack (2019), Molly's Game (2017)

SHOWS





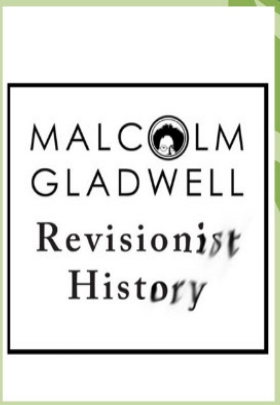
Community (NBC, Netflix), Zoey's Extraordinary Playlist (NBC, Hulu), Pose (FX, Netflix), All American (The CW, Netflix)

AND THERE'S MORE!

MUSIC

Free Yourself Up (Lake Street Dive), Sail Out (Jhene Aiko),
Every Open Eye (Chvrches), Anti (Rihanna)

PODCASTS



Hidden Brain (NPR), Your Undivided Attention (Center for Humane Technology),
Snacks Daily (Robinhood), Revisionist History (Malcom Gladwell & Pushkin Industries)

EATS

Frostop (3100 Calhoun St), Lebanon's Cafe (1500 S Carrollton Ave),
Toast (1500 S Carrollton Ave), Baracuda (3984 Tchoupitoulas St)

THE

DIGITAL RESEARCH INTERNSHIP PROJECT POSTERS

The Digital Research Internship Program worked on a multitude of projects throughout the year. The following posters describe the mission of the research projects and the work completed by the Digital Research Interns. These projects ranged from categorizing archival materials to creating websites. We worked with faculty in a variety of fields such as English, Public Health, and Computer Science.

AFRICAN LETTERS PROJECT

THE DIGITAL RESEARCH INTERNSHIP TEAM

Project Owner: Elisabeth McMahon

Fall 2019 - Spring 2020

BACKGROUND

The African Letters Project is a database of letters written between African and American people during the African Decolonization period between the 1950s and 1990s. The goal of this project is to develop a website that houses the database of letters as well as enables community members to add their own letters to the database, and allows users to perform mapping and network analysis using visualization tools built into the website. Ideally, these letters will be available for scholars and community members alike to gain a deeper understanding of this historical period.

Subject	Date	People from	People to	Place from	Place to	Collection	Orgs Mentioned
information needed	2/8/1962	Jonas Malheiro Savimbi	Dear Friend	Switzerland	New York	aaaaaaaaaa @ Amistad Research Center	MPLA
Personal	7/2/1963	George M. Houser	David Kimble	New York City	Dar es Salaam	aaaaaaaaaa @ Amistad Research Center	ACOA, Africa Today
Settling In?	4/11/1956	George M. Houser	George M. Houser	Liberia	Liberia	aaaaaaaaaa @ Amistad Research Center	
Personal; Convict Labor in South Africa	4/21/1965	George M. Houser	Patrick Duncan	New York	Algiers	aaaaaaaaaa @ Amistad Research Center	PAC, Pan-Africanist Congress of Algeria, ACOA
Scheduling a meeting in the Tanzanian Embassy/Invitation/Sched	11/1/1968	George M. Houser	Ambassador John W.S. Malecela	New York City	Addis Ababa	aaaaaaaaaa @ Amistad Research Center	
TANU Updates/Personal Updates	4/13/1957	Maida Springer Kemp	Julius Nyerere	Brooklyn	Dar es Salaam	aaaaaaaaaa @ Amistad Research Center	TANU
Loan	9/17/1957	George M. Houser	Dominic Haule	New York City	Kilosa	aaaaaaaaaa @ Amistad Research Center	ACOA, Institute of African-American Relations
Political Update/Logistical Update	8/5/1963	Tom Mboya	George M. Houser	Nairobi	New York	aaaaaaaaaa @ Amistad Research Center	ACOA
Political Update	10/29/1952	Ella Elder	George M. Houser	Cape Province	New York City	aaaaaaaaaa @ Amistad Research Center	FOR , ANC, AFSAR
Union Correspondence/Personal Life	8/5/1966	Peggy Brown	Wilson Z. Conco	New York City	Big Bend	aaaaaaaaaa @ Amistad Research Center	ACOA

WEBSITE DEVELOPMENT

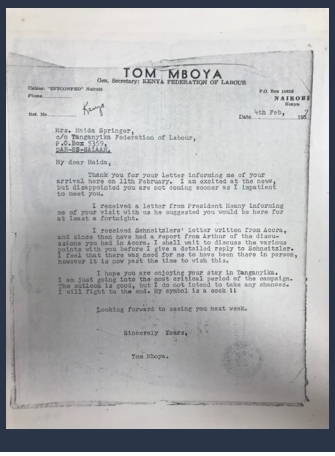
The development team chose WordPress to build the website to house the database. We built the website using WordPress themes and software along side HTML coding. Specifically, we focused on designing the pages to fit the overall aesthetic of the project, and creating an intuitive layout that would be easy for users to navigate and have complete access to view and analyze the database.

DATA VISUALIZATION

The second focus for this project was utilizing data visualization software to map the data and create a graphical representation of the connections formed by these letters. As a team we researched different options and created a comprehensive list of options. This document compares visualization tools using metrics such as cost, technical abilities, display options, and other factors. This document will be used to choose and implement a software option for the visualization of the African Letters Project database.

MOVING FORWARD

With the framework of the website complete, the next step will be to migrate the database onto the WordPress website. We have created the site so that the letters can be displayed in a gallery view and viewers can see scanned photos of each letter along with the historical details. Additionally, we plan on creating a mechanism on the website that allows users to submit their own letters to the database. After these steps are completed, the website can be made public and distributed to scholars and stakeholders that can utilize the data in their own research.



TOM MBOYA

Gen. Secretary: KENYA FEDERATION OF LABOUR

NAIROBI
Kenya

Ref. No. Kemp

With Pride, 196

Mrs. Maida Springer,
c/o Tanganyika Federation of Labour,
P.O.Box 1970,
DAR-ES-SALAAM.

My dear Maida,

Thank you for your letter informing me of your arrival here on 11th February. I am excited at the news, but disappointed you are not coming sooner as I impatient to meet you.

I received a letter from President Kenny informing me of your visit with us he suggested you would be here for at least a fortnight.

I received Schnatzlers' letter written from Accra, and since then I have had a further letter from Schnatzler saying that he would like a small sett to discuss the various points with you before I give a detailed reply to Schnatzler. I feel that there was need for me to have been there in person, however it is now past the time to wish this.

I hope you are enjoying your stay in Tanganyika. I am just going into the most critical period of the campaign. The outlook is good, but I do not intend to take any chances. I will fight to the end. My symbol is a cock !!

Looking forward to seeing you next week.

Sincerely Yours,

Tom Mboya.

Newcomb Institute's Digital Research Internship
Fall 2019 - Spring 2020

AMAZON ALEXA ARTIFICIAL INTELLIGENCE (AI) APP

MISSION: Develop an AI project for social good

Tulane Trending, is a voice-enabled app that will allow members of the Tulane community to ask questions about life on campus with a single, easy-to-use platform. Once users have activated our skill, they will be able to ask Alexa about various on-campus events and resources, such as hours of operation or phone numbers for services.

To finalize this project, the dev team created a buisness pitch to showcase the product. The interns used the presentation to showcase how they blended social good into a profitable pitch.

During production, the dev team faced difficulty implementing Amazon's developer tools. The team researched RSS feeds, AWS calendar tutorials, JSON file structures, and an aggregated news feed tutorial. It was challenging for interns to get a hold of the necessary data in a format that can be used by AWS. Working through the many tutorials was a learning process for the interns, and exposed them to a wide array of technologies.

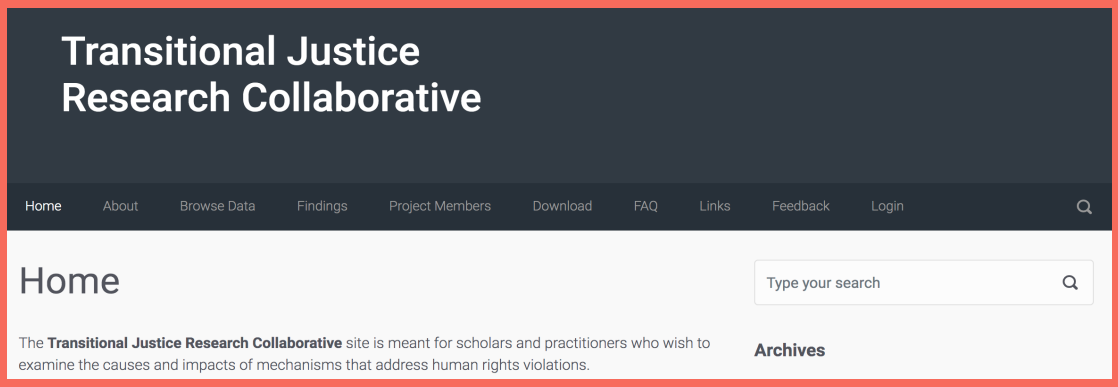
Watch the Tulane Trending Pitch:
https://youtu.be/U0h-znBdHd4

Project Owner: Jaelle Scheuerman

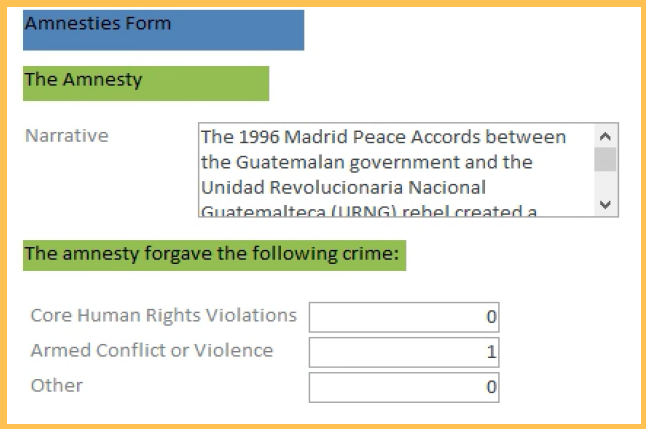
HUMAN CENTERED DESIGN FOR AI DRIVEN TOOLS

TRANSITIONAL JUSTICE

Revamping the website, updating the databse, and building frontend/backend user portals



Transitional Justice is a project that the DRI interns have been working on for a couple of years now. Each year brining us closer to the goals and functionality that Dr. Dancy wants for his new website. This year we have begun to utilize Access as a location to store the database, which we can then link to the new Wordpress site, as well as a location for forms that Dr.Dancy's coders can utilize to easily put in data. Doing this will hopefully allow the site users to create their own queries while allowing the site to be easily updated and modified. Continually we have also researched plugins that can be utilized on the Wordpress site, so that the queries can be successful, and also link the access database to the site.



NEWCOMB'S DIGITAL RESEARCH INTERNSHIP

PROJECT OWNER: GEOFF DANCY

FALL 2019 - SPRING 2020

This Beautiful Sisterhood of Books

A Digital Media Collection at Tulane University

The DRI team created a website to digitally catalog and preserve the books from female authors in the Victorian Era. Throughout the semester we made aesthetic changes to the website and worked to find a plug-in that would upload additional information about the literature: like a standarized author name, publication date and location.

This makes archived books more accessible to the public for research and education. As the semester came to a close the plug-in crashed so, we made an easy-to-follow guide for future interns to develop the archive even further using resources like Tulane Technology Services and additional plug-ins.

Project Owners: Kate Adams & Susan Tucker
The Digital Research Internship 2019-2020

ViaNolaVie

ViaNolaVie.org is a cultural and lifestyle magazine created by citizens of New Orleans and Tulane University students. Articles focus on stories and issues relevant to people living and visiting New Orleans. The site currently has more than 7,500 articles and has been published since 2018.

ViaNolaVie

Talking about life & culture in New Orleans

PEOPLE PLACES EVENTS ORGANIZATIONS CITY CONTEXTS

During **Fall 2019** and **Spring 2020**, DRI Interns curated two week-long themed curations of preexisting ViaNolaVie articles. By doing so interns helped to curate the over 7500 stories in VNV archives in new and fun ways to give them new life and new perspectives on the most important issues facing New Orleanians today.

With the help the Tulane Technology Services, the DRI interns are aiming to create a WordPress Plug-In to allow ViaNolaVie articles to be merged onto the Tulane archives website. Interns have become familiar with WordPress's backend through publishing VNV articles, and will create a plugin that utilises RSS feeds to merge ViaNolaVie with Tulane archives.

Project Owners: Vicki Mayer & Kelly Crawford
Digital Research Internship Program

MACROECONOMIC GRAPHS

PROJECT OWNER
TONI WEISS

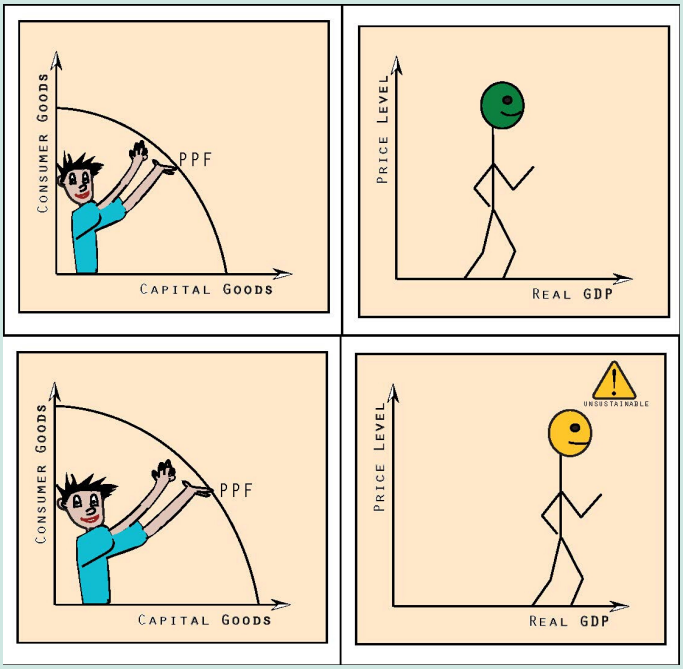
AND THE
DIGITAL RESEARCH
INTERNSHIP PROGRAM

NEWCOMB INSTITUTE'S DIGITAL RESEARCH INTERNSHIP

FALL 2019

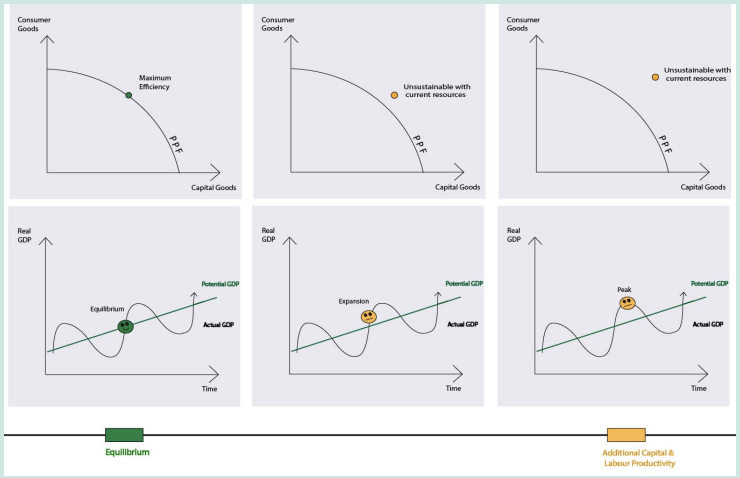
PROJECT MISSION

The Digital Research Internship Scrum team designed two stop-motion animations for Toni Weiss's Introductory Macroeconomics class. The animations will help students to visualize the flow of the business cycle by showing the three stages in a time lapse. Long Run Aggregate Supply curves are illustrated using human animation to display the concept visually.



Two of the nine Long Run Aggregate supply graphs

BOTH GRAPHS PICTURES ARE PART OF A LARGER SET OF ANIMATED IMAGES



Three of the nine Business Cycle graphs

INTERN WORK

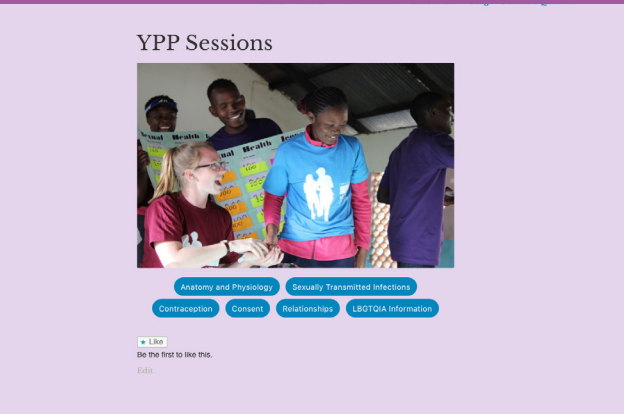
The Scrum team's animated graphs demonstrated the Long Run Aggregate Supply Curve and the Business Cycle. Interns created the graphs on Adobe Illustrator following guidelines from Dr Weiss and their own economic experience. After creating graphs they were animated using Adobe Premiere Pro. Both projects consist of nine pairs of graphs, animated to two second intervals.

THE DIGITAL RESEARCH INTERNSHIP TEAM
FALL 2019 – SPRING 2020

NCRF SEXUAL & REPRODUCTIVE HEALTH DIGITAL RESOURCES

Project Owner: Kelsey Williams

Dr. Patricia Kissinger, infectious disease epidemiologist and Tulane professor, has developed a Youth Peer Provider model in order to better improve sexual and reproductive health (SRH) education and access to contraceptives in Kenya. This model gives young people the opportunity to talk about topics related to SRH in a safe and comfortable environment guided by peers. The Digital Research team has developed a website to supplement the curriculum where students can access notes from each session, additional online resources, and a forum to anonymously ask questions that will be answered by a blog post.



This year, the team has worked on designing the website and making it functional and easily navigable. We kept the intended audience of the website in mind, opting to use bring colors to give it a modern and young feel. Our chief concern was making sure that the website was user-friendly and easily navigable on a smartphone, since many of the young people using the website will likely use it on a cellphone or other mobile device. Going forward, we will continue to add content and lessons to the site in order to make sure that the information is as helpful, applicable, and as up to date as possible.

VOTER TURNOUT IN NEW ORLEANS

NEWCOMB'S DIGITAL RESEARCH INTERNSHIP
PROJECT OWNER: MIRYA HOLMAN
FALL 2019 – SPRING 2020

Interns worked with Dr Holman to help her understand how geography shapes politics, and how failures in service influence citizens to participate in elections.

The team created a "census" of the many geographic data sets on data.nola.gov, so they could be better recognized and accessed. In addition, the census includes quality assessments of each data set. This complete compilation of data sets will empower voters to learn about their local area. This census will also be useful to future research, as Dr. Holman's team can refer to it for information about accessing each file and its possible applications to the project.

	A	B	C	D	H	I	J	K
1	**Name of Dataset**	**Description**	**Time**	**Level of Geography**	**Keywords**	**QUANTITY**	**ACCESSABILITY**	**QUALITY**
2	Calls for Service 2019	9-1-1 calls in the New Orleans area	2019	Latitude, Longitude	Health, 911, crime	10; 460k data	3; many columns and most are not in plain english	6; comprehensive but confusing
3	Catch Basin Cleanings/Inspections	Catch Basins cleaned and inspected	2018-present	Latitude, Longitude	Inspection, cleaning	10; 81k	6; most columns are plain english	7; fairly easy to understand
4	NOPD Misconduct Complaints	complaints of misconduct originated by a citizen either directly to NOPD or through the IPM or by an employee	2016-2019	Police Divisions/Districts	NOPD, misconduct, complaints	6; 4k	8; easily accessable	9;
5	Vacation Rentals	A merged dataset of the Hotels, Motels, B&Bs, and Boarding Houses and the Short-Term Rentals datasets.	2017-present	Latitude, Longitude, also Addresses	Rentals, Vacation	5; 3k	9; everything is simple except for the coordinates	10; overall very useful
6	311 OPCD Calls	calls to the Orleans Parish Communications District 311 Call Center and historical calls to the City of New Orleans' 311 Call Center	2012 - Present	Latitude, Longitude, also Addresses	311, OPCD, Orleans Parish Communication District	9; 300k	6; fair	7; good besides 3 confusing metrics

GitHub

Additionally, we expanded our work to GitHub, an incredibly popular data management tool, where we uploaded all relevant public datasets to a public repository. Finally, in order to make the transition to GitHub more accessible, we created a GitHub Primer Document that explains what GitHub is and how to use it effectively for your needs.

INFORMATION TECHNOLOGY INTERNSHIP PROGRAM

In the **Information Technology Internship Program**, undergraduates support technical operations within a non-profit research and education center. Undergraduates work in technical areas such as digital research, asset management, IT customer service, and Classroom/AV support. This paid internship supplements students' majors and minors when seeking employment or prestigious technology internships.

Meet the IT Team

DANIELLE WALDER

Danielle is originally from Chicago but moved to Los Angeles during high school. She is a sophomore studying economics and information technology while minoring in SLAMM and Sociology. She has a super unique personality and often finds herself interacting with all types of people. She's the marketing chair of Women in Technology and the House Manager for her sorority, Alpha Epsilon Phi. She likes being a technology intern because she gets the privilege of learning how to solve everyday techinal problems.

RACHEL TABOR

Rachel is a sophomore majoring in Biomedical Engineering from Abita Springs, Louisiana. She loves biking around Tulane's beautiful campus and Audubon Park. Within Newcomb, she is the treasurer of Tulane's Society of Women Engineers and is a member of Women in Technology. She loves being a Newcomb Information Technology intern because it gives her real-life experience while working in an empowering environment alongside amazing people!

ANNE GROTJAN

Anne is a senior from St. Louis, Missouri graduating in May with a BS in Psychology and a BSM in Finance. Previously, Anne has conducted research at the Irish Institute of Digital Business (dotLab) running network analyses on Twitter data. She is interested in how technology shapes people's experiences and influences their financial decisions. Being an Information Technology Intern allows Anne to explore the intersections of technology, psychology, and gender in an inclusive environment. She plans to attend graduate school for Business Analytics in the fall.

Meet the IT Team

SARAH FOX

Sarah is a sophomore from Westfield, NJ studying mathematics and computer science. In her free time, she loves exploring New Orleans. She is also the secretary of Women in Technology. She loves both of her positions in Newcomb Institute because she gets to collaborate with talented and inspiring women in the technology field. She has been exposed to many new areas of technology which has allowed her to diverse her skill set outside of the classroom.

ALY GREENGRASS

Aly is a junior studying english with minors in International Development and SLAMM. She loves reading, writing poetry and discussing interesting topics from class (she's taken a lot of awesome classes)! She's fascinated by the intersections of literature and the humanities with technology and is quite interested in digital marketing and communications. She loves being an IT intern at Newcomb as it's allowed her to hone her technology and technical writing skills. She's super excited to continue learning WordPress and take on whatever other projects the IT internship throws her way.

SOPHIE TANEN

Sophie is a sophomore from Rutland, Vermont. Here at Tulane, she studies both Computer Science and Linguistics. She is also a member of our Women's Club Rugby team, and in addition to working as an Information Technology Intern, she works at the Reily Recreation Center as a front desk attendant. She has been working as an Information Technology intern at Newcomb Institute for seven months now, and she loves it because she has been able to learn so much both from her supervisors and her coworkers. She is thrilled to have a team to work with and get to know better!

ITI BEHIND THE SCENES AT

NEWCOMB

"I've learned so much as a Tech Intern and become much more confident in my graphic design and teamwork skills. One of the highlights of my experience was when Jacque let me sit in on her and an IT specialist fixing connectivity issues in one of the offices which let me see how my knowledge could be applied in a real world scenario."

Sarah Fox

NI Technology Intern

Lessons Learned

Not accepting "I don't know" as an answer and instead researching other solutions.

Asking for help when you need it

Learning by doing.

Current Projects

IT Manual
Podium Instructions
2020 Zine Special Interest Articles
Prequel Zine
Metadata Project
Sophie Lab Web Management
Equipment Maintenance
Help Ticket System

Challenges

Adjusting to a new space and technology.

Being adaptable when things don't go as planned.

Remote work and supporting each other from a distance.

"My role at Newcomb has allowed me to devolp skills as an undergrad that I otherwise would not be able to gain. Jacque has created an encouraging team enviroment where eveyone can succeed. It's great to see women supporting women in tech!"

Anne Grotjan

NI Technology Intern

CURRENT PROJECTS

Help Ticket System

The main purpose of the Help Ticket System is to streamline technical issues and so we have documentation common requests. Newcomb Institute's Help Ticket System is designed to be completed by the classroom support team any time there is an issue in Newcomb Institute's event spaces. This includes any technical troubleshooting, telecommunication and network support, and hardware support.

Podium Instructions

The purpose of the Podium Instructions project is to create instruction cards with easily understood opearting procedures on how to work the technology in the Newcomb classrooms. Many ITI worked on this project to make sure that the instructions were accessable.

Prequel Zine

The purpose of the Prequel Zine is to provide a space for all previous Newcomb projects in a publication. This project required us to find previous publications from various sources and then place them in one cohesive zine.

Sophie Lab Web Management

The Sophie Lab educates undergraduates about the importance of diversity and inclusion in STEM. It is a curated digital space that communicates Newcomb Institute's role in working towards gender equity in STEM through undergraduate programming. This site showcases different STEM projects of Newcomb Institute undergraduates. It also provides educational resources for undergraduates to help bridge the gender gap in STEM. This project, specifically, promotes feminist leadership in technology-centered communities through student programming and digital scholarship.

Metadata Project

This project focuses on sorting, organizing, and labeling digital archival data resources in box. This project is a huge undertaking, but it is extremely satisfying to make our amazing archive accessible!

Equipment Maintenance

Quite possibly our most important on-going project, properly managing our equipment is a very important project. Each week IT interns clear documents and update computers. They also manage inventory.

Our Belated Thanks, Hedy Lamarr

Rachel Tabor

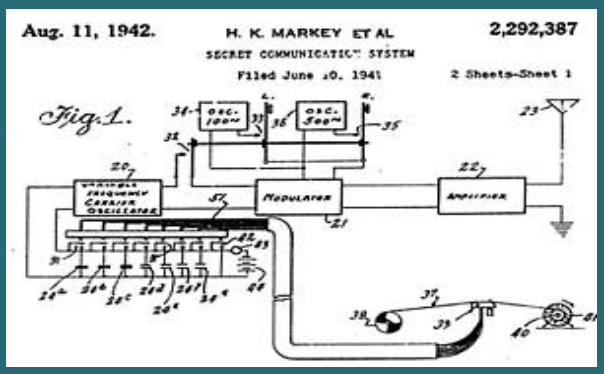
You may have heard of Hedy Lamarr for her glamorous aura, many movie appearances, or maybe even her reports of shoplifting in her later years. But in the scientific communications industry, she is known for a different reason: Bluetooth, WiFi, GPS, and other forms of secure communication. Unfortunately, very little know of her for the latter, as her cinematic lifestyle overshadowed her scientific achievements. Her lifestyle received, both, backlash and praise, but Hedy Lamarr's family "believed she died without ever telling her story"1. The Bombshell: Hedy Lamarr Story is a biographical documentary directed by Alexandra Dean that gives insight to many of Hedy Lamarr's decisions from interviews, tapings, and documents from Hedy and friends.

Hedy Lamarr left high school when she was 16 to pursue her acting career. Three years later, when she was 19, she starred in the film Ecstasy that stained her reputation for its sexual nature. Dean carried a big responsibility presenting this in an accurate way, as this influenced the way society viewed any of Hedy Lamarr's future works. Hedy Lamarr was very vocal in defending herself by saying that the movie clips were manipulated and she just did as she was told, out of fear of losing her job. However, this fact was only included for less than 30 seconds at the tail end of the documentary. While an interviewee saying that, (insinuating that Hedy Lamarr was lying about her confusions while filming Ecstasy),was featured in the documentary. There are millions of people that agree with Hedy Lamarr, and say that at 19 years of age she should not have been casted for that film, but Dean chose to leave these voices out, reinforcing negative stereotypes in Hedy Lamarr's name.

Hedy Lamarr always had an inventive mind, she had a number of documented inventions in her recovered notebooks. As a Jewish woman, Hedy Lamarr immigrated to the United States and exhibited extreme patriotism. Her most notable invention was a frequency hopping torpedo which she "got the idea for when I tried to think of some way to even the balance for the British".1 The allies' were using torpedoes which communicated to the boats through unsecure radio communications, but the Germans kept identifying the frequency the allies' were on and jamming it. Hedy Lamarr patented the idea of frequency hopping: meaning these torpedoes would communicate on multiple frequencies, therefore it would be nearly impossible to jam the signal. Alexandra included an interview with a communications specialist that strongly believes Hedy Lamarr stole her idea from her first husband, although this has been debunked by multiple sources. When she presented the idea to the Navy, it was met with rambunctious laughter. They told her she would be more help being cute and elling war bonds. Dean did an amazing job getting the audience to see how persevering Hedy Lamarr was through blatant sexism, and how she constantly defeated limitations society gave her

Source: The Guardian

Alexandra then includes an interview with Hedy Lamarr and a man where she is clearly distressed about not getting any payment for her patent, despite her technology was being used in all of the boats during the Cuban missile crisis. The man just keeps insisting, in a patronizing tone, that she was wrong and that it was used only after her patent expired. The Navy gave a contractor Hedy Lamarr's patent, which he used as a basis for the communication system of sonobuoys. The inventor of the sonobuoy had a website where he paid tribute to Hedy Lamarr, thanking her for her invention. The film reminds us that throughout all of this, Hedy Lamarr was still working 12 hours a day and being fed speed pills in the morning and sleeping pills at night. And Hedy Lamarr received no compensation for her patent.


Aug. 11, 1942. H. K. MARKEY ET AL 2,292,387
SECRET COMMUNICATION SYSTEM
Filed June 10, 1941 2 Sheets-Sheet 1
Fig. 1.
Modulator
Amplifier

Source: American Physics Society

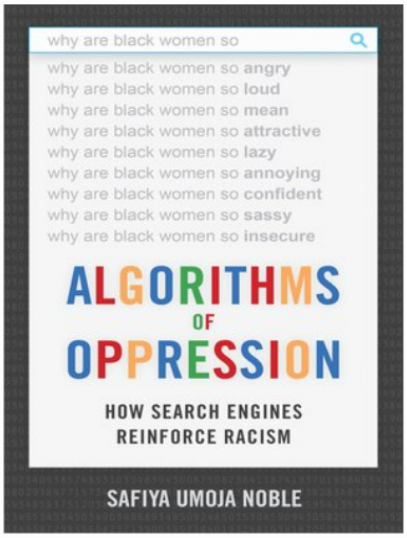
The most disheartening part of Hedy Lamarr's life story is the downfall at the end, which is unfortunately what a lot of people remember her for. Dean did an amazing job presenting the main contributing factors: her constant mockery of her inventions, no payment for her patent, withdrawals from being fed meth every day at work. Many people say she was an actress that went crazy. It was prevalent that she had developed mental health issues due to pressure placed on her to maintain a certain appearance. Also, she discusses how she was a patient of Dr. Feelgood, a common hollywood "doctor," until he got his medical license revoked for giving patients methamphetamine.

Alexandra's documentary is one that reminds us of the sad reality that many women in science face. Hedy Lamarr's invention is valued at 30 billion dollars in today's society, while her and her family have recieved nothing.her for our wifi, bluetooth, gps, and military communication we would not have without her. We give her our belated thanks.

1 Dean, Alexandra, director. Bombshell: The Hedy Lamarr Story

ALGORITHMS OF OPPRESSION: HOW SEARCH ENGINES REINFORCE RACISM

Safiya Umoja Noble



In a time where more and more of our lives are controlled by artificial intelligence, Dr. Safiya Noble's *Algorithms of Oppression: How Search Engines Reinforce Racism* offers an in-depth analysis of the bias of search engine algorithms, which should alter the way we all acquire information. Most view search results as trustworthy, but after 6 years of research, this associate professor at UCLA argues quite the opposite in that information companies, specifically Google, rank results based on their own economic interests. Google promotes information based on its profitability, without admitting that these happen to be the pages with the most racism and sexism. This is an incredibly dangerous consequence of human-created AI since developers unconsciously include their own biases into their code, and these ideas are then taken as fact since they appear as the first search results. Company representatives claim these issues are simple bugs; however, Noble goes as far to say that these oppressive ideas are fundamental to the operating system.

Throughout, Noble also notes that she typically searches for black feminist texts and was surprised to see that her habits had not skewed the results. Years later, she still found bias in Google Images, such as the search term "beautiful" yielding all white women or "professor style" yielding all white men. Another interesting example is when Noble searched "English major who taught herself calculus," Google autocorrected "herself" to "himself." Clearly, the best option for the user is not what is motivating the search results, rather the commercial interests of advertisers. Porn sites, for example, pay Google large amounts of money to ensure favorable rankings in order to increase their site traffic. On page 162, she writes "we are the product that Google sells to advertisers," which powerfully speaks to the commercial value of search results and our data.

> "...WHEN NOBLE SEARCHED 'ENGLISH MAJOR WHO TAUGHT HERSELF CALCULUS,' GOOGLE AUTOCORRECTED 'HERSELF' TO 'HIMSELF.'"

By looking at this issue through the lens of critical race theory, Noble successfully communicates that biased algorithms are technical and political issues. The examples of blatant racism and sexism she discovered relate to the way we value African Americans and women in our everyday lives. Although this bias could be argued as an unconscious prejudice unknowingly rooted inside us, the fact that it exists at all signals a larger problem exacerbated by Google when it places profit over neutrality. Noble solidifies that the only way to create a system where everyone is algorithmically literate is to allow people to access their data on their terms, not on the terms of corporations. In response, I agree with her stance that everyone should improve their "algorithmic literacy" to be able to understand the social context of algorithms and how they impact our daily lives. This is essential in order for minority groups to redefine how they are represented on the internet.

Through reading this book, I have realized the power algorithms hold over our day to day lives, and how important it is to keep this in mind when using Google or other search engines. Our data is constantly being used to filter and rank search results, so it is imperative we realize why one result ranks higher than another. I encourage everyone, not just technology enthusiasts, to read this book because this is a very prevalent issue that is not going away soon, but with more awareness, can be effectively combatted.

DOES GENDER MATTER IN MEMES?

A SENTIMENT ANALYSIS OF TULANE MEMES

Anne Grotjan

INTRODUCTION

While browsing social media, we are often exposed to memes of various sources and topics, but what do these memes say about our views on society? As a senior at Tulane, I follow many Tulane-specific meme accounts that provide commentary on Tulane happenings and groups. These memes are created by students and are posted on Instagram or tweeted to be liked and shared among our community. Often, these memes target specific groups on campus and highlight them in an unflattering way. My research focused on sentiment differences regarding gender in Tulane memes. My hypotheses were as follows:

A. There is a gender disparity in sentiment in Tulane Memes. Memes about women have a more negative sentiment than memes about men or nongendered memes.
B. Memes about Tulane President, Mike Fitts will have a more negative sentiment than memes about men in general.
C. There is a sentiment difference of the different Tulane meme accounts.

METHODS

Data Preparation

For my analysis, I hand-coded a data set of 452 memes from a total of 915 sampled from five different Tulane Meme accounts on Instagram, see Table 1. Memes that where the "butt" of the joke, too visual or memes that included videos were removed from the data set. Following the data harvesting, individual memes were tagged what gender the meme was directed at (male, female, or no gender), what account the meme came from, and whether the meme was about the President of Tulane or not. Finally, the different data sets were run through R for a sentiment analysis.[1,2] The analysis looked for the recurrence of positive or negative words and gave each meme a score. The average sentiment score for the data set was -0.3739, with a slight negative sentiment.

Data Analysis

Meme Account Analysis

Meme account sentiment differences were analyzed in SPSS using a One-way ANOVA and a Tukey Post Hoc Test.

Gender Analysis

Gender differences in sentiment were analyzed in SPSS using a One-way ANOVA and a Tukey Post Hoc Test. Additionally, a T-Test was conducted on the male data set to see if there was a sentiment difference in memes about Mike Fitts, Tulane's President and memes about the general male population.

1. Minqing Hu and Bing Liu. "Mining and Summarizing Customer Reviews." Proceedings of the ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD-2004), Aug 22-25, 2004, Seattle, Washington, USA,
2. Bing Liu, Minqing Hu and Junsheng Cheng. "Opinion Observer: Analyzing and Comparing Opinions on the Web." Proceedings of the 14th International World Wide Web conference (WWW-2005), May 10-14, 2005, Chiba, Japan.

Gender Analysis

A significant difference in gender was found at a p-value of 0.05. see Table 3 (summary statistics are in Table 4). According to the Turkey Post Hoc Test, there is a significant difference in the distributions between Men and No Gender. However, no significant difference was found between Men and Women and Women and No Gender, see Table 5 and Figure 2. Summary statistics are in Table 6 for the analysis on Men versus the president of Tulane. There was no significant difference found for memes about men in general and memes about the President of Tulane, see Table 7 and Figure 2.

Table 3: *One-way Analysis of Variance of Sentiment by Gender*

Source	*df*	*SS*	*MS*	*F*	*P*
Between Groups	2	22.372	11.186	3.689	0.026
Within Groups	449	1361.440	3.032		
Total	451	1383.812			

Table 4: *Gender Analysis Summary Statistics*

Gender	*N*	*Mean*	*Std. Deviation*	*Minimum*	*Maximum*
Men	73	0.0822	1.54339	-5.00	5.00
Women	76	-0.2500	2.25167	-12.00	4.00
No Gender	303	-0.5149	1.63740	-7.00	6.00
Total	452	-0.3739	1.75166	-12..00	6.00

Table 5: *Tukey Post Hoc Test*

(I) Gender	*(J) Gender*	*Mean Difference (I-J)*	*Std. Error*	*Sig.*
Men	*Women*	0.33219	0.28537	0.475
	No Gender	0.59704*	0.22703	0.024
Women	*Men*	-0.33219	0.28537	0.475
	No Gender	0.26485	0.22339	0.462
No Gender	*Men*	- 0.59704*	0.22703	0.024
	Women	- 0.26485	0.22339	0.462

*The mean difference is significant at the 0.05 level

Table 1: *Meme Account Analysis Summary Statistics*

Tulane Meme Account	*N*	*Mean*	*Std. Deviation*	*Minimum*	*Maximum*
Cottoncandytitty	113	-0.0354	0.15997	-6.00	6.00
Ihateyoutulanememes	37	-0.0811	0.22720	-4.00	5.00
memzfromthe504	101	-0.2871	0.13954	-6.00	3.00
Tbs_tulane	106	-0.1415	0.15543	-12.00	3.00
Tulane.republicans	95	-1.2421	0.21980	-7.00	4.00
Total	452	-0.3739	0.08239	-12..00	6.00

After SPSS Analysis

Following the SPSS analyses, the data was input to excel in order to create visuals.

The distributions were normalized in order to create comparative normal distributions.

Additionally, a word cloud creator was used to create word clouds for the different gender data sets.

RESULTS

Meme Account Analysis

A significant difference in meme accounts was found with a p-value of 0.05, see Table 2. According to the Turkey Post Hoc Test, Tulane.republicans was the only Tulane meme account that was significantly different, as evident in Figure 1.

Table 2 *One-way Analysis of Variance of Sentiment by Gender*

Source	*df*	*SS*	*MS*	*F*	*P*
Between Groups	4	94.215	23.554	8.164	0.000
Within Groups	447	1289.597	2.885		
Total	451	1383.812			

Figure 1: Sentiment Distrubution of Tulane Meme Accounts

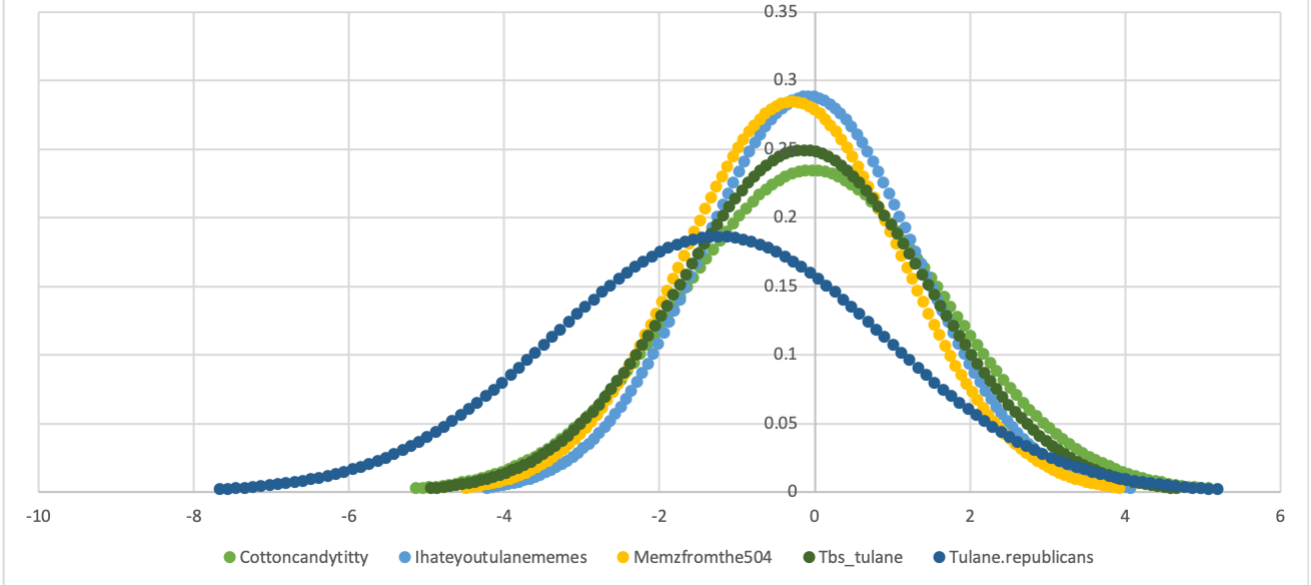


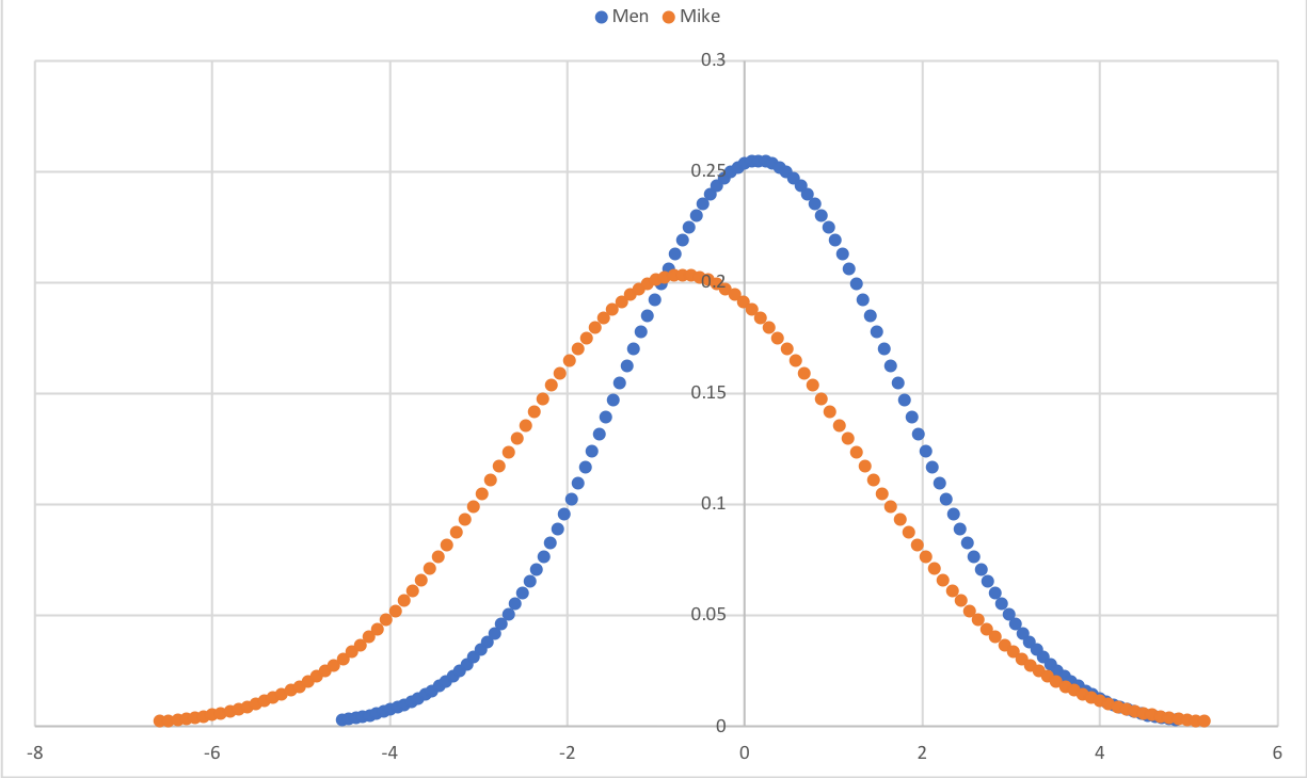
Table 6: *Men vs Mike Fitts Analysis Summary Statistics*

Fitts	*N*	*Mean*	*Std. Deviation*	*Minimum*	*Maximum*
Men	64	0.1563	1.56569	-5.00	5.00
Mike Fitts	17	-0.7059	1.96102	-6.00	1.00

Table 7: *Independent Samples Test of Men vs Mike Fitts*

		Levene's Test for Equality of Variances		*t-test for Equality of Means*				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Sentiment	*Equal variances assumed*	1.704	.196	1.911	79	0.060	0.86213	0.45114
	Equal variances not assumed			1.676	21.719	.108	0.86213	0.51431

Figure 2: Sentiment Distrubution of Men vs Mike Fitts



DISCUSSION

The only significant difference in means was found between men and nongendered memes. However, the distribution of memes about women is very different compared to the men and no gender distributions. The women's distribution has a kurtosis value of 9.175 and a skewness value of -2, meaning the distribution is leptokurtic and negatively skewed, Figure 2. The Men vs Mike Fitts data set is also visually different.

Additionally, the women sub-data set had the most negative sentiment score (-12) out of the data set. The meme is about sorority recruitment and is from tbs_tulane (Figure 4). Figure 5 is an example of a neutral meme with a sentiment score of 0 from Ihateyoutulanememes. The most positive meme came from Cottoncandytitty with a sentiment score of 6 and was a series of tweets about different Majors (Figure 6).

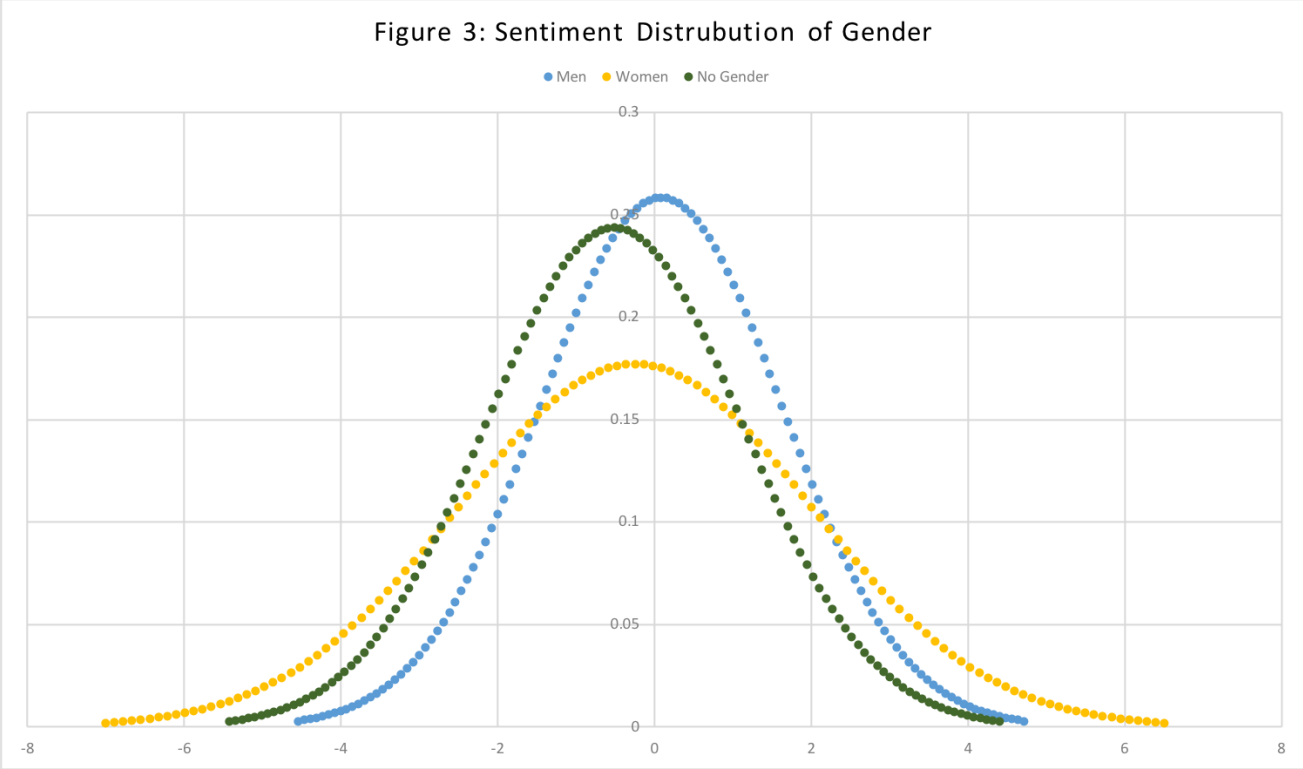


Figure 4: Most Negative Meme

Figure 5: Neutral Meme

Figure 6: Most Positive Meme

The word clouds created (Figures 7-9) depict the words used in the different data sets, with larger words occurring more frequently in the data set. In general, memes about men had a greater diversity of words but included many terms such as never, like, Fitts, and frat (see Figure 7). Nongendered memes consisted of relatively homogeneous words. Some of the most repetitive words from the nongendered memes were Tulane, get, people, Boot, and majors (see Figure 8). Memes about women included terms such as girls, propaganda, sorority, bitch, and idiot (see Figure 9). Another interesting point that is demonstrated in the word clouds is that "white" was a largely represented word in all three data sets.

In my opinion, if I were able to create a data set with all the Tulane memes included, there would be a gender difference in sentiment and possibly a difference in the male memes in regard to ones about Mike Fitts. Additionally, there might be sentiment differences concerning race, as indicated by the word clouds. Further research should look at all memes available on Instagram and Twitter. Additionally, analyses of sentiment differences regarding race of Tulane meme should be conducted.

Figure 7: Male Memes Wordcloud

Figure 8: No GenderMemes Wordcloud

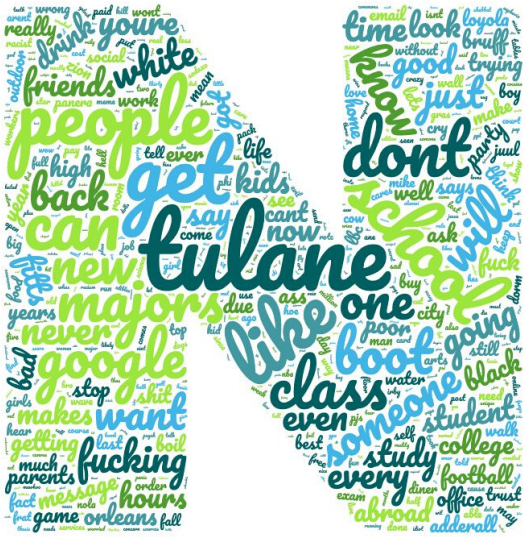


Figure 9: Female Memes Wordcloud

JEWISH WOMEN:

IN TECHNOLOGY

Written By: Danielle Walder

In a year full of anti-Semitism and the constant struggle for gender equality, I want to highlight 3 Jewish women who made it onto the Forbes Most Powerful Women in Tech. Proving to the world that being a Jewish woman is not a limitation, but rather another barrier to break and overcome.

Susan Wojcicki, CEO, YouTube : Susan Wojcicki is a Jewish CEO of YouTube, an American video-sharing platform with more than 2 billion monthly users. Her success began in 1999 when she became Google's 16th employee. Six years later, her hard work and intellect lead her to the successful attainment of YouTube, for $1.65 billion. Wojcicki has run YouTube since 2014, managing to raise its worth to nearly $90 billion. Susan's advice for being a respected woman in the workforce is to speak up for yourself and embrace your confidence. In an interview, she said that when people talk over her and brush her ideas to the side, she calls them out on the spot. From her experience, she often sees women acting hesitant and that is why they do not get the proper acknowledgment. Wojcicki is a very valued individual and feels that "you have to be able to state your opinion in a way that is confident."

Safra Catz, CEO, Oracle: Safra Catz, recently named sole CEO of Oracle Corporation, is one of the most powerful women in the tech industry. Catz has been with Oracle for over 20 years, serving as an executive since 1999 and board member since 2001. This Israel- born American shows her love for Israel and the Jewish community. She has stated multiple times her admiration for Israel by encouraging everyone to invest in their future. Catz has a net worth of $1.1 billion. In 2004, she became the President of Oracle Corporation and is credited with Oracles' $10.3 billion takeover of software rival, PeopleSoft. Safra has spoken on many occasions, expressing the importance of equality in leadership. When asked what the most significant barrier to female leadership is, Catz responded to this by describing the absence of women in leadership roles. Advice from this self-made billionaire is "to go out and start something", emphasizing that if you cannot see yourself as a leader where you currently are, go and make something that you can lead and inspire elsewhere.

Ruth Porat, CFO, Alphabet: Ruth Porat is an amazing role model for aspiring women in tech, showing the importance of female leadership and support in multiple aspects of her career. Porat was raised in a Jewish family in Greater Manchester, England. She previously worked for Morgan Stanley, and now serves as the Chief Financial Officer (CFO) of Alphabet Inc. and its child company, Google. She has overcame breast cancer twice, not letting any setbacks impact her career as a CFO and mother of 3. In 2018, Porat joined employees in a walkout to protest the way sexual harassment was handled at Google. She was one of the few top female executives to actively participate in the Google Walkout for Real Change. The protest was a success, as it resulted in Google dropping its requirement for forced arbitration in sexual harassment cases, making Porat feel that Google has created a society that allows employees to voice concerns and in turn see positive change. Porat has stated the importance of hiring women, saying "This is not just the right thing to do socially. It's the right thing to do for your business."

1Carson, Biz. "Most Powerful Women In Tech In 2019: Beyond CEOs,Women Dominate The C-Suite." Forbes. Forbes Magazine, December 13, 2019. 2"Susan Wojcicki." Forbes. Forbes Magazine. Accessed February 10, 2020. 3Leskin, Paige. "The Career Rise of Susan Wojcicki, Who Rented Her Garage to Google's Founders in 1998 and Is Now the CEO of YouTube." Business Insider. Business Insider, December 9,2019.4Rubin, Eliran. "U.S. Tech Giant Safra Catz Praises Israel as 'a Wonderful Place to Invest in'." Haaretz, April 17, 2018.5Kim, Eugene. "Meet New Oracle Co-CEO Safra Catz, The Highest-Paid Female Executive In The World." Business Insider. BusinessInsider, September 18, 2014.Fastenberg, Dan. "Five Questions for Several of FORTUNE's 50 Most Powerful Women." Time. Time Inc., November 18, 2010."Ruth Porat's Incredible Journey from Fighting Breast Cancer to Becoming the CFO of the World's Most Valuable Company." The Silicon Review, August 30, 2018.Nieva, Richard. "Google CFO: Hiring Women Is Good for Business." CNET, October 7, 2015.

Women and Men in Computing

Sophie Tanen

This semester at Tulane, I am taking two computer science courses. In the past, my classes have been large enough that the discrepancy wasn't as noticeable. However, in my Multi Agent Systems class, there is only sixteen people, in a considerably smaller classroom. When I walked in on the first day, the first thing I noticed was that I am one of only two girls in this class.

This is not unusual. Unfortunately, this is the reality not only at Tulane, but all across America. In 2017, women made up a mere 19% of graduates receiving a college degree in Computer Science. In fact, the average has not been above 20% in 15 years. (1)

However, it has not always been like this. The numbers for women in computing actually peaked in the mid eighties, with 37.1% of graduates in computer science being women. While it has never made it to 50%, the number of women graduates has been cut in half since 1984. (2)

This all makes it hard to believe that once upon a time, computer engineering was a female dominated field

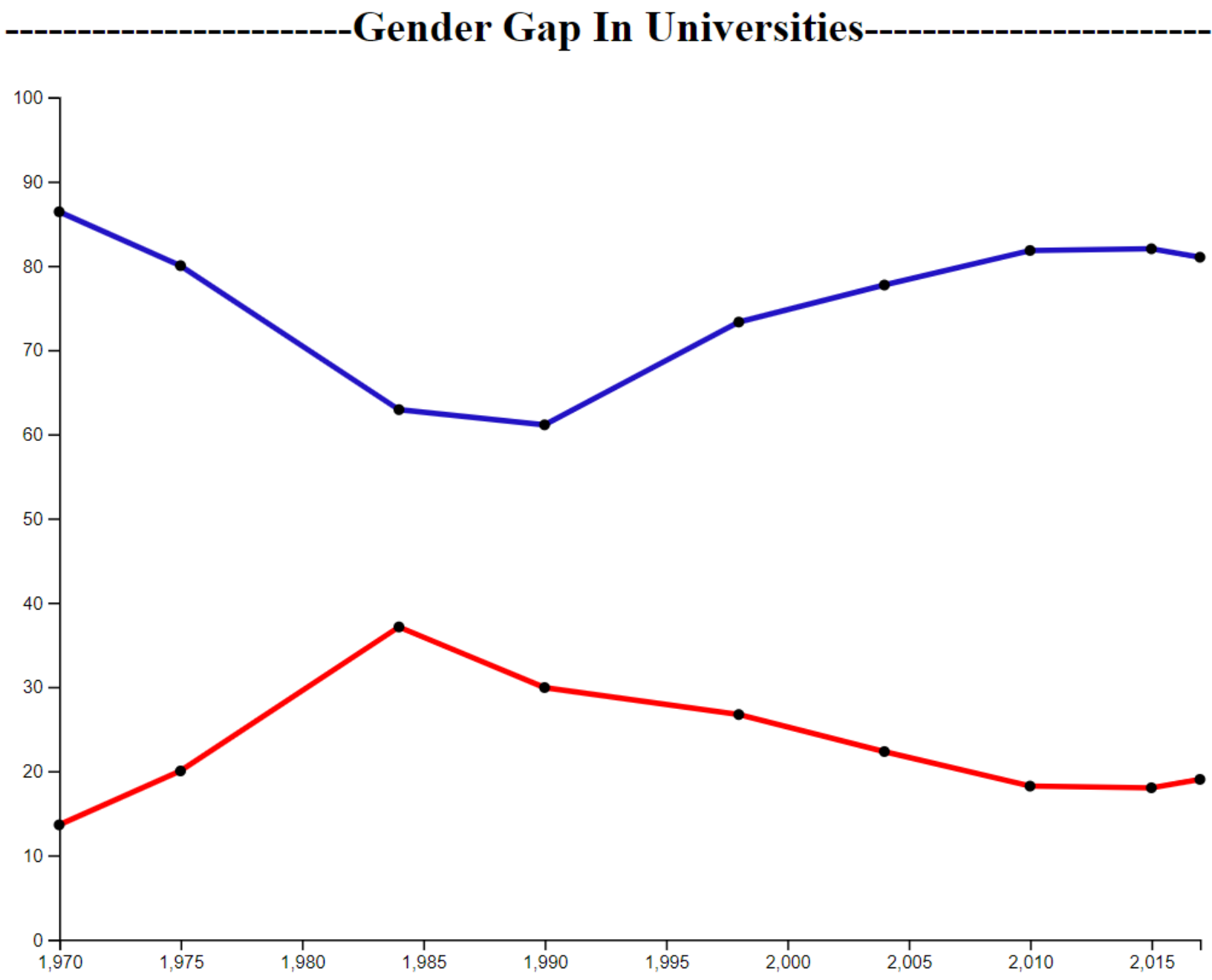
Years ago, during World War II, when the men were off fighting, it was up to the women to rise up in the new technology workplace. Women operated the large computers and wrote code, until the men came back from the war and took over.

According to Marie Hicks, a technology historian, operating the computers "was viewed as unskilled, highly feminized work." Before the field grew, the job was seen as simple without room for moving up to management, so the women could leave at any time to have children. It is because of this that women were able to thrive in this industry, even for a short time, before the mindset shifted. (3)

Women have not been able to take back this career since.

1) Writers, Staff. “Women in Computer Science.” ComputerScience.org, ComputerScience.org, 22 Oct. 2019, www.computerscience.org/resources/women-in-computer-science/.
2) AEIdeas. “Chart of the Day: The Declining Female Share of Computer Science Degrees from 28% to 18%.” AEI, www.aei.org/carpe-diem/chart-of-the-day-the-declining-female-share-of-computer-science-degrees-from-28-to-18/.
3) Brewer, Kirstie. “How the Tech Industry Wrote Women out of History.” The Guardian, Guardian News and Media, 10 Aug. 2017, www.theguardian.com/careers/2017/aug/10/how-the-tech-industry-wrote-women-out-of-history.

Women vs Male Graduates



- Percentage of women Computer Science graduates

- Percentage of male Computer Science graduates

GRANTS

Grace Hopper Celebration of Women in Computing is the world's largest gathering of women technologists. Named after computer scientist Grace Hopper, these conferences bring together students, companies, educators, and professionals.

The **Gender and STEM Research grant program** offers grants for undergraduates who want to conduct research on topics relating to gender and STEM. Students will work approximately 30 hours producing a STEM research project that will be published on the SophieLab website. Students can propose their own projects or have one assigned to them.

Female Characters in Student Scripts

By Keira Barrett Rosner

Student Films Through the Lens of the Bechdel Test

The Bechdel Test was developed by cartoonist and graphic novelist Alison Bechdel in 1985 and in order for any given film to pass, it has to meet the following three criteria:

1. It has to have at least two named women
2. Who talk to each other
3. About something besides a man

Sounds simple, right? So then why do only 57.8% of movies listed in the database on the Bechdel Test website fulfill all three requirements–and why do over 10% meet *none* of them?[1] Networks may strive to cultivate diversity within the workplace, but media is still dominated by men. With this in mind, I developed a research proposal to analyze the representation of female characters in capstone films created by Tulane students within the Digital Media Production program.

An unsuspecting shotgun house from the outside, the DMP building is home to state-of-the-art camera equipment, several editing suites, and about 150 driven students who wish to pursue careers in various facets of film production. Though it is listed as a coordinate major, to call it a "partial" major could not be further from the truth; in fact, I and most

other students who I know from the program spend significantly more time on our work film classes than we do on our "primary" majors. Each DMP student finishes the major by completing a capstone project. Traditionally, and at the time I conducted my interviews for the documentary, these capstone films were between 15 and 18 minutes in length and were developed, written, produced, directed, and edited by that student over the course of two semesters. Members of a capstone class would help each other fill the roles needed during production and at the end, each one would come out with a finished short film to premiere at the Prytania Theatre.

[1] https://bechdeltest.com/statistics/

I wanted to see how my classmates were representing women in their projects, whether these films passed the Bechdel Test, and whether there was even a correlation between well-developed female characters and meeting Bechdel's requirements.

Film, Feminism, & Freret

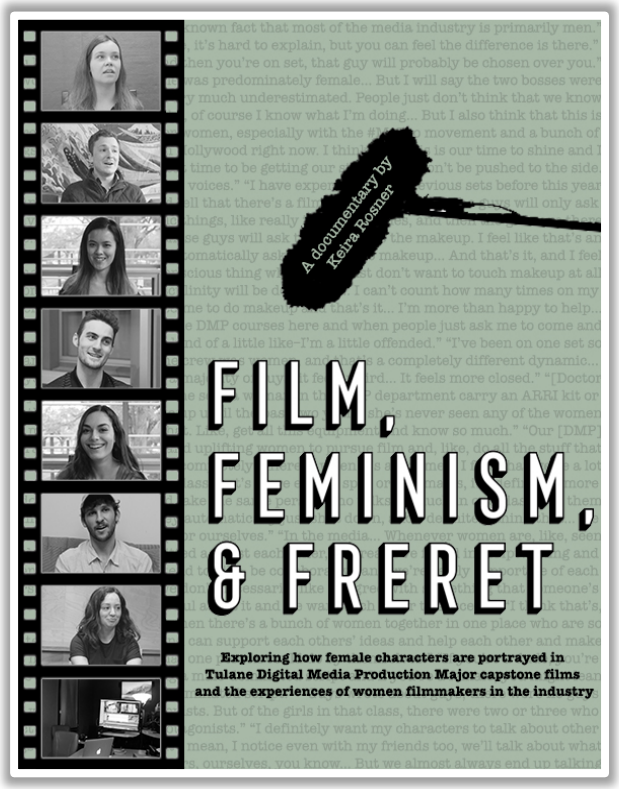
Little did I know the path that this would send me on. In addition to the already exhilarating process of directing and editing my first full-length documentary film, the timing of this project was particularly interesting in that the semester I conducted interviews was the final semester that the DMP department would be led by its creator and most spirited advocate, Dr. Mary Blue.

Almost a year later, the department as a whole has undergone many changes. The format for senior capstones has expanded so that in addition to short films, it now includes the options of writing a feature-length script, delving into sound design, or choosing an emphasis on one facet of production to help with on other students' films rather than creating one's own. The name of the program itself has shifted from "Digital Media Production" to "Digital Media Practices" so that even in the most literal sense, Digital Media Production as I knew it during my time at Tulane is no more.

I was about three quarters of the way done editing my documentary when this massive shift occurred during the summer of 2019 and found myself worried that the work I have put in as a HASTAC Scholar would seem irrelevant after so much change. This has not been the case. Upon further analysis, the stories of the students who put so much heart, soul, and thought into their capstone films in previous years still have much to reveal about what it is like to be a woman in the film and television industry today, highlighting that while so much progress has been made since our female professors were breaking into entertainment during the mid- to late-twentieth century, we still have ways to go before women are truly treated as equals.

A live screening event of my documentary--titled *Film, Feminism, & Freret*--will have to be postponed given the outbreak of COVID-19 around the world and the cancellation of in-person classes and events, but the finished documentary will be available to all who wish to watch on KBRosner.com sometime this April.

What I have left at the end of this process is a collection of interviews and archival footage of the DMP program at a very specific moment in time--one that may be the height of film production at Tulane thus far. I feel truly blessed to have been a part of the Digital Media Production department at the time that I attended Tulane and hope that in the years to come, my peers and I will go on to inspire many other female filmmakers to tell stories through the lenses of their cameras.



Official poster for *Film, Feminism, & Freret*

A COMPREHENSIVE GUIDE TO

THE GRACE HOPPER CELEBRATION

Information on how to prepare for and navigate the Grace Hopper Celebration for Women in Computing. Complete with advice, reminders, FAQs, and reflections from GHC 2019.

Developed by:
Addie Jasica, Riley Juenemann, Kodhai Thirumalai, & Mary Pwint

Scan to read the GHC Guide.

“

I wish someone had told me how easily a job can come from one simple conversation.

Take a look inside
Grace Hopper 2019

7 NEED TO KNOW WOMEN IN TECHNOLOGY

ROSALIND KIDWELL

In October of 2019, I was lucky enough to receive a grant from Tulane's Newcomb Institute to travel to the 2019 Grace Hopper Celebration in Orlando, FL. Being at the world's largest gathering of women in computing was inspiring and eye-opening. Far too often, when we think of famous technologists, women are not always those who come to mind, despite their key role in the earliest days of computer science. As such, I've prepared this page to highlight the contributions that women are continuing to make to the field of computing today.

SCAN ME

TINYURL.COM/Y772JNEL

ADA LOVELACE FIRST HAD THE IDEA FOR AN ANALYTICAL ENGINE THAT COULD PERFORM COMPUTATIONS.

Katherine Johnson was a mathematician that worked on several NASA projects analyzing data about crashes & flight tests. She later received the Presidential Medal of Freedom.

Historical Women in Tech!

Grace Hopper invented the compiler which led to later inventions like: code optimization, subroutines, & formula translation.

MARGARET HAMILTON WAS THE FIRST SOFTWARE ENGINEER TO WORK FOR NASA. SHE CREATED SOFTWARE FOR APOLLO 11 THAT COMPENSATED FOR HARDWARE MALFUNCTIONS.

GRACE HOPPER CELEBRATION

Orlando, Florida 2019

GHC WAS EYE OPENING! I WENT TO ORLANDO NOT KNOWING WHERE I WOULD FIT IN THE TECH INDUSTRY. I CAME BACK CONFIDENT IN WHAT JOBS I WANT TO PURSUE. I RECEIVED GUIDANCE AND CAME BACK INSPIRED & PASSIONATE ABOUT WHAT I AM LEARNING IN MY CLASSES.

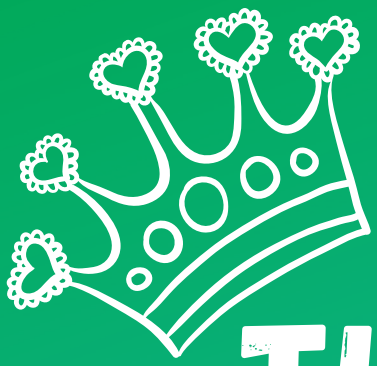
We bonded outside of the conference too! We would go to the pool & reflect about what went well and what didn't. The last night we went to Halloween Horror Nights at Universal Studios & had the best time playing charades while waiting in line for rides. Since being back at Tulane we still hang out and study together-- I feel like I have a new support system.

STUDENT GROUPS

Women in Technology &

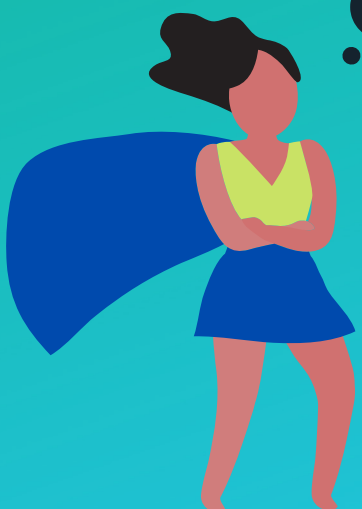
Society of Women Engineers

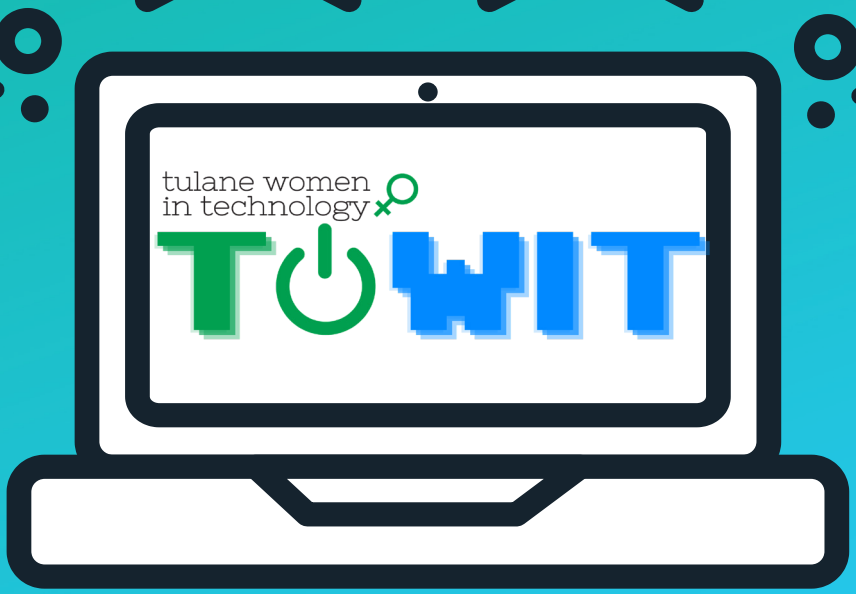
Newcomb Institute offers a variety of clubs for students with an interest in STEM. These clubs supplement students' learning in the classroom and provide an avenue for students to explore different interests outside of class. Students also have the opportunity to meet other students with a shared interest in STEM fields.

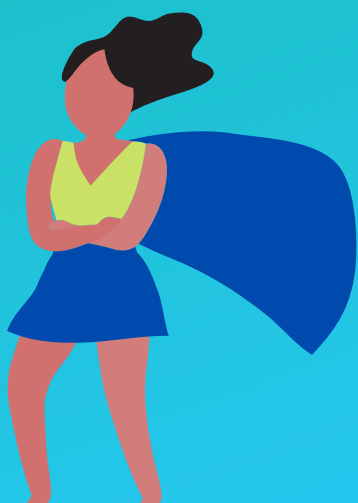


TULANE WOMEN IN TECHNOLOGY

TULANE WOMEN IN TECHNOLOGY IS A DYNAMIC RESOURCE FOR THE CAMPUS COMMUNITY, ACTING AS A NEXUS OF LEARNING, TEACHING, COLLABORATION, AND SUPPORT FOR ALL STUDENTS SEEKING A DEEPER COMPREHENSION AND PROFICIENCY IN APPLICATIONS OF DIGITAL TECHNOLOGY.

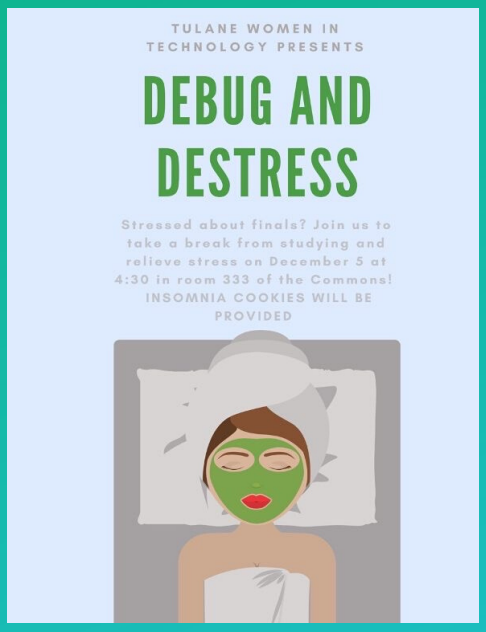


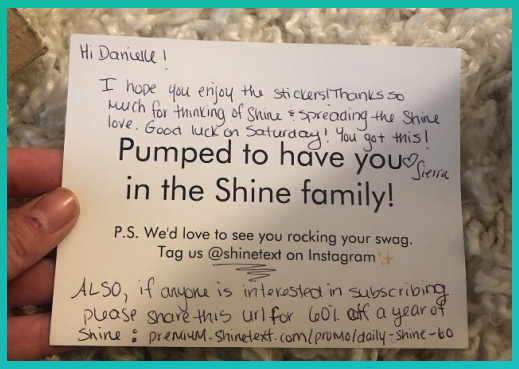




2019-2020

our year in pictures





SOCIETY OF WOMEN ENGINEERS

by women. for women.

who we are:

The Society of Women Engineers is a national organization founded on principles of **advancing** and **empowering** women in engineering and other STEM fields.

Tulane's collegiate SWE section is a community of undergraduate women and men united in supporting women in engineering disciplines on campus and beyond.

13%
of engineers in the workforce are women

>32%
of women leave STEM programs in college

10%
less pay earned by female engineers than male

45.5%
of engineering degrees at Tulane are awarded to women

what we do:

community

build a community among undergraduate women in engineering programs

outreach

participate in outreach at Tulane and throughout New Orleans

provide professional development opportunities through SWE's national conference and workshops

professional development

@tulaneswe

facebook.com/tulaneswe/

November 2019

Anaheim, CA

SWE TULANE TAKES

WE19

largest conference for women in engineering

WHAT IS SWE?

SWE, the Society of Women Engineers, is an international organization whose goal is to promote women and minorities in engineering, a historically male-dominated field.

WE19

SWE's annual conference is the largest conference for women in engineering worldwide, boasting over 15,000 attendees made up students and professionals. Events include lightning talks, panels, breakout sessions, and a two-day career fair with 300+ companies actively recruiting for internship and full-time hire positions.

ATTENDEES

SWE Tulane took 17 attendees from all three engineering disciplines - biomedical engineering (BME), chemical engineering (CHEME), and engineering physics (ENGP). Thanks to our Newcomb budget & personal fundraising efforts, we were able to fully cover registration and hotel costs and partially cover travel.

Our attendees received interviews and offers from a number of engineering companies, including Medtronic, Boston Scientific, Lockheed Martin, Accenture, Stryker, Northrop Grumman, GE Renewables, and more!

TESTIMONIALS

Colette McGarvey, BME 2020

Networking with some of the most innovative, world-renowned, and passionate companies is an experience unlike any other. My post-grad job as an R&D engineer at Medtronic began with an internship I received at conference. WE19 increased my networking abilities, professional experiences, and communication skills. Furthermore, women empowerment is a focus at the conference; it's inspiring to see so many women making incredible impacts in their respective fields.

Claire Davis, ENGP 2020

With dozens of breakout sessions, a massive career fair, and thousands of female engineers, WE19 totally lived up to and exceeded my expectations. The conference was challenging at times, as the days started early and required a lot of energy for networking. But the conference was also extremely rewarding and offered opportunities I hadn't dreamed of. I was able to talk to the right people at the right time, and now I'll be starting my dream job with GE Renewables this summer thanks to SWE!

Meghan Bush, ENGP 2020

As a three-time conference attendee, I can say with certainty that attending SWE conference has made a huge impact on my college career. By encouraging members to begin their professional development early, SWE is preparing a cohort of women to be incredibly successful in their future careers. Being confident in my networking, skills, and experiences allowed me to secure my dream internship with NASA - I will be forever thankful to SWE for giving me this opportunity.

NEWCOMB TECH IN MIND

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