

Inclusion, Diversity, Equity,
Accessibility, and Leadership Skills

GradCohort IDEALS

LIGHTNING
TALKS

CRA-WP

Computing Research Association
Widening Participation

LIGHTNING TALKS - BLUEFIN II

#	Presentation Title	Name	Affiliation	Research Area
1	Online forums as means of support for ADHD	Vitica Arnold	University of California, Irvine	Accessible Computing
2	Applications of Artificial Intelligence in Public Health and Epidemiology	Rubenia Borge	University of North Texas	Artificial Intelligence
3	AI and Dementia	Wilson Lozano	University of South Florida	Artificial Intelligence
4	CheXRelNet: An Anatomy-Aware Model for Tracking Longitudinal Relationships between Chest X-Rays	Amarachi Mbakwe	Virginia Tech	Artificial Intelligence
5	Exploring top-down visual pathways using micro-stimulation and its applications to cortical visual prosthesis	Lucas Gil Nadolskis	Carnegie Mellon University	Bio & Medical Informatics
6	Beyond Binders and Bookmarks: Deciphering Dr. Google to Enhance Patient-Provider Communication	Xiomara Gonzalez	University of Texas, Austin	Bio & Medical Informatics
7	Microfluidic Impedance and Flow Cytometry for the Identification of Minority Subpopulations of Modified Red Blood Cells	Taylor Patrick	University of Virginia	Bio & Medical Informatics
8	"A key to reducing inequities in like, AI, is by reducing inequities everywhere first": Emerging critical consciousness in a co-constructed secondary CS classroom	Megumi Kivuva	University of Washington	CS Education
9	Next Best Experience in Commercial Pharma	Pranav Adiga	Purdue University	Data Science
10	Multi-domain Anomaly Detection in Heterogeneous Temporal Data	Tolulope Ale	University of Maryland, Baltimore County	Data Science
11	Modeling Access Differences to Reduce Disparity in Resource Allocation	Kenya Andrews	University of Illinois, Chicago	Data Science
12	Challenging the STEM major from a non-tech background	Aoi Minamoto	Indiana University	Data Science

LIGHTNING TALKS - BLUEFIN II

#	Presentation Title	Name	Affiliation	Research Area
13	Designing Large-Scale Urban Wireless Sensor Networks	Alex Cabral	Harvard University	Distributed Computing
14	The First Generation Conundrum - A model of wage outcomes as a Function of Information endowment	Anuva Agarwal	Duke University	Economics and Computation
15	Tuning Cloud Infrastructure for HPC Scientific Workflows	Paula Olaya Garcia	University of Tennessee, Knoxville	High Performance Computing
16	Algorithmic Ecosystem: Decentralized Provision of Social Services	Meryem Essaidi	Princeton University	Machine Learning & Data Mining
17	Human in Machine Teaching: Human and Mathematically Interpretable Query Selection	Belen Martin Urcelay	Georgia Institute of Technology	Machine Learning & Data Mining
18	Handling Missing Data in the Real World	Ndidi Obinwanne	University of Alberta	Machine Learning & Data Mining
19	Low Resource Natural Language Processing	Milind Agarwal	George Mason University	Natural Language Processing
20	Leveraging public discourse for novel substance use disorder analysis	Layla Bouzoubaa	Drexel University	Natural Language Processing
21	Building the Question Answering System over Hybrid data with Logical Consistent In-context Learning	Brenda Henriquez	George Mason University	Natural Language Processing
22	Detecting False Claims in Low-Resource Regions: A Case Study of Caribbean Islands	Jason Lucas	Pennsylvania State University	Natural Language Processing
23	Exploring morphosyntactic variation in low-resource English varieties	Tessa Masis	University of Massachusetts, Amherst	Natural Language Processing
24	On Decomposition Algorithms for Leveraging Quantum Computers for Large-Scale Problems	Claudio Gomes	Carnegie Mellon University	Quantum Computing
25	Studying cognitive effects of user interaction with zoomorphic affective robots	Preeti Vyas	University of British Columbia	Robotics

LIGHTNING TALKS - STINGRAY

#	Presentation Title	Name	Affiliation	Research Area
1	Collaborative AT Tools for Children from Diverse Backgrounds	Cornelius Adejoro	University of Colorado, Boulder	Human Computer Interaction
2	Finding Your Way: Examining User Perspectives on Navigational Technologies	Taneeza Sunil Agrawaal	University of Toronto	Human Computer Interaction
3	Thelxinoe and Touch in VR	Darlene Barker	University of Massachusetts, Lowell	Human Computer Interaction
4	Codesigning Interventions for Resilience with Community Organizations in Gender-based Violence	Connie Chau	Northwestern University	Human Computer Interaction
5	Neural Dynamics of Trust and Team Processes in Human-Human-Agent Teams	Lucca Eloy	University of Colorado, Boulder	Human Computer Interaction
6	Inclusivity and accessibility of Virtual Reality	Nuela Chidubem Enebechi	Purdue University	Human Computer Interaction
7	Investigating the Emergent Data Practices of a Marginalized Community Fighting Enviro-Racial Injustice to Co-Create an Information Infrastructure	Tajanae Harris	University of Colorado, Boulder	Human Computer Interaction
8	AI and Design Opportunities for Smart Speakers	Tao Long	Columbia University	Human Computer Interaction
9	Recommended Identity: Rewarding Self-Expression and Encouraging Positive Behavioral Exploration for all	Mina Mbodj	Clemson University	Human Computer Interaction
10	Atomic behaviours as a path towards self-design of affective haptic robots	Devyani McLaren	University of British Columbia	Human Computer Interaction
11	Reimagining the Future of Mobile Apps for Maternal Mental Health Promotion	Vanessa Oguamanam	Georgia Institute of Technology	Human Computer Interaction
12	Time to Politicization: The Emergence and Effects of Politics on Science YouTube Videos	Aspen Omapang	Cornell University	Human Computer Interaction
13	Phased Technological Practices of Music Therapists	John Osorio	Indiana University	Human Computer Interaction

LIGHTNING TALKS - STINGRAY

#	Presentation Title	Name	Affiliation	Research Area
14	U.S. Applicants' Perceptions of College Admissions Algorithms	Cassidy Pyle	University of Michigan	Human Computer Interaction
15	Different not Deficient: Teaching Inclusive Communication Practices to Allistic Technology Professionals	Naba Rizvi	UC San Diego	Human Computer Interaction
16	ImageSign: Sign Language Images to Text Generation	Sunday David Ubur	Virginia Tech	Human Computer Interaction
17	Personalizing Visualizations for Learning	Fernando Yanez	University of Toronto	Human Computer Interaction
18	Human-AI Co-orchestration of Dynamic Transitions between Individual and Collaborative Learning	Kexin Yang	Carnegie Mellon University	Human Computer Interaction
19	Age-Appropriate Privacy Protections for Youth on Social Media	Gowri Balasubramaniam	University of Illinois, Urbana Champaign	Security/Privacy
20	Insider Threat Mitigation Framework Using Moving Target Defense And Attribute Based Access Control	Olusesi Balogun	Georgia State University	Security/Privacy
21	Understanding user security practices through rituals	Sulagna Mukherjee	University of Southern California	Security/Privacy
22	Zoom Audio Transcription Accuracy for African American Vernacular English	Christina Chance	University of California, Los Angeles	Speech & Natural Language Processing
23	Automatic Question-Answer Generation for Education	Hannah Gonzalez	University of Pennsylvania	Speech & Natural Language Processing
24	Low-resource natural language processing and speech processing for African languages	Tolúlopé Ògúnremí	Stanford University	Speech & Natural Language Processing
25	How much we can improve classroom's orchestration system using data?	Bahar Shahrokhian Ghahfarokhi	Arizona State University	Speech & Natural Language Processing

LIGHTNING TALKS - BLUEFIN II | ABSTRACTS

Talk #1 | Online forums as means of support for ADHD

Vitica Arnold, *University of California, Irvine*

Without the right support, students with ADHD in higher education face greater psychological and emotional difficulties than their peers. Numerous accessibility-related obstacles hinder college students with ADHD from succeeding academically. College students with ADHD are an understudied population within informatics and academia at large. Seeing as the number of college students with ADHD is on the rise, researchers must identify the barriers they face in higher education. I offer a qualitative analysis to identify these gaps in academic accessibility by examining contemporary content posted in existing public online communities focused on college students with ADHD. Additionally, I seek to provide new evidence that supports existing literature on the use of social media as digitally mediated support for people with ADHD. My research aims to examine how people with ADHD in higher education use online communities as means of support. With the use of Content Analysis, we aim to delve into the online communities of students with ADHD, covering a wide range of academic levels, from undergraduates to PhDs. Our goal is to gain an understanding of the most sought-after types of social support in posts made by these students, as well as the individuals who are providing and receiving this support. Using thematic analysis our objective is to shed light on what kinds of topics individuals are discussing to navigate higher education. Understanding the types of social support that students with ADHD are seeking is important because it sheds light on the gaps in existing support systems and resources, highlighting the need for improvement and change. Moreover, identifying the types of social support most sought-after by students with ADHD can inform the development of new support systems, such as online communities and peer networks. Examining the topics discussed by individuals with ADHD navigating higher education is not only important for providing insights into the unique challenges and struggles faced by this population but also these findings can be used to inform and improve support systems, resources, and accommodations for individuals with ADHD in academic settings.

Talk #2 | Applications of Artificial Intelligence in Public Health and Epidemiology

Rubenia Borge, *University of North Texas*

The progress in performance and accuracy in Artificial Intelligence applications is impressive with limitless potential to solve problems in different areas. In the particular case of Public Health and Epidemiology there is an immense need for data science and modeling of different scenarios for different public health concerns. In this research we show how machine learning models compare to traditional methods and evaluate the adequacy of different algorithms to relevant public health problems.

Talk #3 | AI and Dementia

Wilson Lozano, *University of South Florida*

We aim to increase understanding of dementia from the perspective of using AI to monitor behavioral patterns, with specific focus on aggressive behavioral and psychological symptoms (aBPS). We work on qualifying observed relationships between aBPS and behavioral cues, such as body movement and gestures, language and speech, physical location, or social context. We aim to understand of which behavioral cues are correlated with aBPS to assess the feasibility of using AI in at-home care for PwD.

LIGHTNING TALKS - BLUEFIN II | ABSTRACTS

Talk #4 | CheXRelNet: An Anatomy-Aware Model for Tracking Longitudinal Relationships between Chest X-Rays

Amarachi Mbakwe, Virginia Tech

Despite the progress in utilizing deep learning to automate chest radiograph interpretation and disease diagnosis tasks, change between sequential Chest X-rays (CXRs) has received limited attention. Monitoring the progression of pathologies that are visualized through chest imaging poses several challenges. We propose CheXRelNet, a neural model that can track longitudinal pathology change relations between two CXRs. CheXRelNet incorporates local and global visual features.

Talk #5 | Exploring top-down visual pathways using micro-stimulation and its applications to cortical visual prosthesis

Lucas Gil Nadolskis, Carnegie Mellon University

The search for restoring vision has focused on retinal implants or cortical implants. Although more promising, cortical implants have only been able to give us phosphenes, but not the complexity of natural visual perception. One of the reasons is the complexity of vision. Higher-order visual areas such as V4, as well as high-order cognitive areas such as the prefrontal cortex, are as central to visual perception as primary visual areas. My research focuses on top-down aspects of vision.

Talk #6 | Beyond Binders and Bookmarks: Deciphering Dr. Google to Enhance Patient-Provider Communication

Xiomara Gonzalez, University of Texas, Austin

Breast cancer patients consult online resources throughout their cancer journey, with the Internet being the second most frequently cited source of information. A critical barrier to patients' sensemaking about their health is the disconnect between patient-provider and patient-online communications. Our research focuses on developing interventions to enhance patient-provider communication based on the principle that online health information exposure is part of a patient's medical history.

Talk #7 | Microfluidic Impedance and Flow Cytometry for the Identification of Minority Subpopulations of Modified Red Blood Cells

Taylor Patrick, University of Virginia

The discovery of new biomarkers for cell subpopulations is an area of interest for microbiology. Microfluidic impedance cytometry (MIC) offers a high throughput, label-free analysis method that measures the electrical bio-physical properties of single cells. Label free MIC rare-event detection in heterogeneous populations often results in the misidentification of rare cells due to significant information loss. MIC and Machine Learning (ML) is utilized to identify known rare cell subpopulations.

LIGHTNING TALKS - BLUEFIN II | ABSTRACTS

Talk #8 | “A key to reducing inequities in like, AI, is by reducing inequities everywhere first”: Emerging critical consciousness in a co-constructed secondary CS classroom

Megumi Kivuva, *University of Washington*

To understand what role counternarratives have in secondary CS classrooms, we taught a co-constructed high school course to a diverse classroom, framing the course as both a creative and critical introduction to CS, giving agency to students to incorporate critical themes into their learning. Through a qualitative thematic analysis over 6-weeks, we analyzed the extent students brought critical themes into their creative work, developing critical consciousness of CS concepts.

Talk #9 | Next Best Experience in Commercial Pharma

Pranav Adiga, *Purdue University*

Build a recommendation tool that identifies and suggests the next best promotional channel to communicate with individual Healthcare Professionals (HCP) to optimize interaction on business campaigns. The recommender engine transforms historical interaction data by HCPs and campaign parameters to provide recommendations such as: Suggest the best channel (eg, phone, email) for the next HCP interaction. Recommend the best time to send head quarter emails to each HCP for optimized engagement.

Talk #10 | Multi-domain Anomaly Detection in Heterogeneous Temporal Data

Tolulope Ale, *University of Maryland, Baltimore County*

We propose a novel approach to discovering the temporal relations between distinct domains in the form of multi-domain anomalies. Our goal is to identify the anomalous collective relationship between distinct domains using co-occurrence of temporal events across the domains, which can be during the same time or with a temporal lag. Our method identifies direct and time-delayed temporal relationships between multiple domains. We evaluated our method using ERA5 reanalysis dataset and NJDOT data.

Talk #11 | Modeling Access Differences to Reduce Disparity in Resource Allocation

Kenya Andrews, *University of Illinois, Chicago*

Disadvantaged groups are more severely impacted by lacking resources and have unique barriers of access to them. We formalize and study the problem of resource allocation, develop a concrete access model to quantify how a given allocation translates to resource flow, provide an access-aware allocation to mitigate overall disparity, provide empirical evidence for our model, and show that access-aware allocation can significantly reduce resource disparity and improve downstream outcomes.

LIGHTNING TALKS - BLUEFIN II | ABSTRACTS

Talk #12 | Challenging the STEM major from a non-tech background

Aoi Minamoto, Indiana University

I was born with visual disabilities and am the first college graduate in my family. I do not have a science background before enrolling in a computer science master's program. I have learned it myself online while working a full-time job. I want to share the hardships I met and want to encourage girls like me to study STEM majors.

Talk #13 | Designing Large-Scale Urban Wireless Sensor Networks

Alex Cabral, Harvard University

Hardware and software advances have paved the way for large-scale urban sensor networks (USN), but there is no guidance on where to place nodes and how to determine if a network is well designed. I define coverage of USN with the consideration of cities as more than just physical spaces then propose data-driven and nature-based algorithms for USN design. This work will enable deployment of robust sensor networks that produce useful citywide data despite the complexities of urban environments.

Talk #14 | The First Generation Conundrum - A model of wage outcomes as a Function of Information endowment

Anuva Agarwal, Duke University

Networks determine lifetime wage outcomes through access to information networks. This paper models differing wage outcomes in career trajectories of individuals who are closer to familial or parental career arenas vs. those who are further away from the career related exposure they have had in their growing years. This model finds that over time wage level differences cease to matter, however lifetime income may differ due to compounded returns to income as well as information networks.

Talk #15 | Tuning Cloud Infrastructure for HPC Scientific Workflows

Paula Olaya Garcia, University of Tennessee, Knoxville

As workflows are growing more complex (i.e., large data, modularity, heterogeneity), scientists need a cloud infrastructure that enables their workflows shareability and scalability. We provide best practices on cloud infrastructure to enable shareability and scalability of scientific workflows, increase the productivity of scientists, and accelerate scientific discovery. We demonstrate the usability and scalability of the cloud infrastructure for an exemplar ML-based scientific workflow.

LIGHTNING TALKS - BLUEFIN II | ABSTRACTS

Talk #16 | Algorithmic Ecosystem: Decentralized Provision of Social Services

Meryem Essaidi, *Princeton University*

We theoretically examine whether coordination mechanisms can help reduce the gaps between local systems of provision and the optimal global allocation.

Talk #17 | Human in Machine Teaching: Human and Mathematically Interpretable Query Selection

Belen Martin Urcelay, *Georgia Institute of Technology*

Machine teaching develops example selection policies that teach a known target concept to a ML algorithm with the least number of examples. Our goal is to develop policies that are understandable to humans, while maintaining a mathematical interpretation. We define prompts to guide humans selecting examples, and we relate the humans' responses to prompts with the ground truth being taught.

Talk #18 | Handling Missing Data in the Real World

Ndidi Obinwanne, *University of Alberta*

Data makes machine learning, prediction, and decision-making possible. When data is missing or incomplete, however, analysis is defective and predictions are biased and inaccurate. Unfortunately, missing data is an unavoidable problem in the real world and which requires investigation. My research focuses on the concept of gating in addressing this problem.

Talk #19 | Low Resource Natural Language Processing

Milind Agarwal, *George Mason University*

The world has great linguistic diversity, with over 7000 languages. However, the computational discipline that studies them, NLP, doesn't reflect this diversity. With an increasingly tech-driven world, depriving people access to technology, legal representation, or healthcare in their native language is tantamount to loss of culture, traditions, and ultimately language death. In my research area, I study how we can develop NLP breakthroughs in languages with little to no data.

Talk #20 | Leveraging public discourse for novel substance use disorder analysis

Layla Bouzoubaa, *Drexel University*

The utility of social medium has been shown to be substantial in bioinformatic research. Substance use disorder(SUD) has been, and continues to be, a national crisis on the rise. Understanding how people who use drugs(PWUD) talk about their usage and behaviors online may uncover certain motivators, particularly to recovery. This research studies drug-related Reddit posts to find patterns that can lead to SUD, and thusly recovery, with NLP.

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Talk #21 | Building the Question Answering System over Hybrid data with Logical Consistent In-context Learning

Brenda Henriquez, *George Mason University*

To address the numerical problems and apply in-context learning over tabular and textual data, we propose a logic-consistent selection strategy. This work presents a 7.3% improvement over the baseline of supervised learning, which proves the efficiency of applying the large language model in numerical reasoning, and 0.5% improvement over the text-relevant method, which proves the importance of the logical consistency of prompts and questions.

Talk #22 | Detecting False Claims in Low-Resource Regions: A Case Study of Caribbean Islands

Jason Lucas, *Pennsylvania State University*

The COVID-19 pandemic has created severe threats to global health control. In particular, misinformation circulated on social media and news outlets has undermined public trust in government and health agencies. This problem is further exacerbated in developing countries or low-resource regions where the news may not be equipped with abundant English fact-checking information. This poses a question: “are existing computational solutions toward misinformation also effective in low-resource region

Talk #23 | Exploring morphosyntactic variation in low-resource English varieties

Tessa Masis, *University of Massachusetts, Amherst*

I will explore the task of automatic grammatical feature detection in low-resource Englishes, i.e. Indian English, African American English (AAE). I build on previous work fine-tuning BERT-like models with contrast sets, and present a novel approach generating effective contrast sets via corpus-guided edits. I then present work applying this method to sociolinguistics, analyzing AAE feature use on Twitter and characterizing linguistic variation in terms of geography and other social factors.

Talk #24 | On Decomposition Algorithms for Leveraging Quantum Computers for Large-Scale Problems

Claudio Gomes, *Carnegie Mellon University*

Quantum computers are growing rapidly in size, thanks to their potential benefits for problem-solving. However, we are in an awkward point where these machines show some advantage but are still too small to tackle large-scale problems. To leverage quantum computers in realistic problems, decomposition algorithms are used, which decompose large problems into smaller sub-problems that can be individually solved by quantum computers. I am working on developing a novel decomposition algorithm.

LIGHTNING TALKS - BLUEFIN II | ABSTRACTS

Talk #25 | Studying cognitive effects of user interaction with zoomorphic affective robots

Preeti Vyas, *University of British Columbia*

Human tactile interactions are often connected with emotions. With established theories of embodied cognition in psychology, evidence-based animal-assisted therapies, and empirical evidence of calmness invoked by interacting with a furry haptic creature, we presume there can be a causal connection between our interaction with a furry zoomorphic robot and our ability to cognitively reappraise an emotional situation. This research aims to explore such a connection.

LIGHTNING TALKS - STINGRAY | ABSTRACTS

Talk #1 | Collaborative AT Tools for Children from Diverse Backgrounds

Cornelius Adejoro, *University of Colorado, Boulder*

My research investigates how accessible and supportive real-time translation is to children. In particular, to develop a prototype that supports children from diverse backgrounds and to carry out a user study to evaluate the effectiveness of this prototype. I plan to explore two research directions by utilizing VR devices to support collaborative learning for children and leveraging fNIRS to carry out hyper-scanning with children to know whether their brains are highly correlated or not.

Talk #2 | Finding Your Way: Examining User Perspectives on Navigational Technologies

Taneeza Sunil Agrawaal, *University of Toronto*

The design of current routing/mapping and or wayfinding applications such as Google Maps place a heavy emphasis on time and efficiency. Any route is suggested and ranked based on the time it takes, and faster routes are ranked higher than slower routes. In this project, we expand the range of values used in the design of navigation applications. This study also probes the user's connection to our physical environments and how the design of navigational tools may affect or improve this relationship.

Talk #3 | Thelxinoe and Touch in VR

Darlene Barker, *University of Massachusetts, Lowell*

Touch is that thing we recognize as a connection with another person. In day to day activities we experience touch without much thought to what it would be like without its presence. It is a second nature to our life experience somewhat like breathing. This changes when being separated by distance or Covid-19 protocols; now touch is that thing we have become aware can be taken away whether by distance or medical protocols. Our framework integration of a haptic device to simulate touch.

Talk #4 | Codesigning Interventions for Resilience with Community Organizations in Gender-based Violence

Connie Chau, *Northwestern University*

My research aims to develop novel and scalable computational approaches to reducing vicarious trauma and burnout at the individual, organizational, and community-levels for frontline advocates in nonprofit organizations that serve survivors of gender-based violence (GBV). I organize codesign workshops to invite advocates from multiple nonprofits to collaboratively define their experiences with vicarious trauma and burnout, ideate potential solutions, and align on values for such tools.

LIGHTNING TALKS - STINGRAY | ABSTRACTS

Talk #5 | Neural Dynamics of Trust and Team Processes in Human-Human-Agent Teams

Lucca Eloy, *University of Colorado, Boulder*

By applying multidimensional recurrence quantification analyses to functional near-infrared spectroscopy (fNIRS) brain data, I identify neural predictors of trust and collaborative processes during a complex teaming task with two humans and one agent. These results highlight a novel, interpretable, model-free method with potential to differentiate between latent interpersonal and team-level states in real time during human-agent teaming.

Talk #6 | Inclusivity and accessibility of Virtual Reality

Nuela Chidubem Enebechi, *Purdue University*

The future of VR is very promising and with VR being more incorporated into the various aspects of human life. Therefore, it is imperative for Human-Computer Interaction (HCI) researchers to understand how VR can accommodate more accessible and inclusive designs for diverse users. This presentation dives into the utilization of VR for minority groups in the old age population. It also touches on some ways VR games can be more adaptive to wheelchair users with upper limb impairments.

Talk #7 | Investigating the Emergent Data Practices of a Marginalized Community Fighting Enviro-Racial Injustice to Co-Create an Information Infrastructure

Tajanae Harris, *University of Colorado, Boulder*

My research assists communities suffering from environmental injustice fight for healthy living conditions. Using ethnography and participatory infrastructuring, I examine the emergent data practices—the residents' data collection, sharing, collation, and analytic activities—that are being developed by this community of color to fight the the presence of heavy industry in their neighborhoods.

Talk #8 | AI and Design Opportunities for Smart Speakers

Tao Long, *Columbia University*

Advances in voice technology and voice user interfaces (VUIs) — such as Alexa, Siri, and Google Home — have opened up the potential for many new types of interaction. However, despite the potential of these devices reflected by the growing market size and body of VUI research, there is a lingering sense that the technology is still underused. In this paper, we conducted a systematic literature review of 35 papers to identify and synthesize 123 VUI design guidelines into five themes. Additionally

LIGHTNING TALKS - STINGRAY | ABSTRACTS

Talk #9 | Recommended Identity: Rewarding Self-Expression and Encouraging Positive Behavioral Exploration for all

Mina Mbodj, *Clemson University*

Latent biases in recommender systems can occur when algorithms tailor recommendations to users' self-expressions, which are often mediated by identity and can differ based on race and social lines. This can result in discriminatory recommendations of content and interpersonal interactions, leading to biased outcomes. The goal of this research is to reduce latent biases and increase equity online by designing recommendation algorithms that expose users to a wider range of self-expressions.

Talk #10 | Atomic behaviours as a path towards self-design of affective haptic robots

Devyani McLaren, *University of British Columbia*

Our research explores self-design as a process for creating affective haptic robots, and we introduce the concept of atomic behaviours as a framework for facilitating self-design. Personalizing affective haptic technologies is challenging due to the complexity of haptic technology and users' individual preferences. An unexplored avenue of this personalization is self-design, where a user designs and fabricates technology for themselves.

Talk #11 | Reimagining the Future of Mobile Apps for Maternal Mental Health Promotion

Vanessa Oguamanam, *Georgia Institute of Technology*

In the U.S, the number of pregnant and postpartum women experiencing perinatal mood and anxiety disorders (PMAD) has increased significantly. During the perinatal period, psychological distress can have negative impacts on the emotional and physical wellbeing of the mother and her child (e.g., preterm birth, infant mortality, postpartum depression). Despite the high risks of maternal depression, perinatal women have been reported to underutilize mental health delivery services due to barriers such as cost, stigma, and lack of access. Within the computing field, mobile-based health (mHealth) interventions have shown promise in addressing these barriers and increasing access for those most susceptible to adverse mental health outcomes (i.e., perinatal Black women). However, research investigating how perinatal Black women are currently utilizing existing mHealth tools is underexplored. This work presents findings from our mixed-methods study exploring the current utilization, adoption, and design preferences of mHealth tools for mental health support amongst perinatal Black women. Moreover, this work presents a speculative look into a design of a mHealth companion app for supporting maternal mental health informed by our findings and related work within this domain. Finally, we conclude with design recommendations for future digital mental health research targeting marginalized and underserved populations.

LIGHTNING TALKS - STINGRAY | ABSTRACTS

Talk #12 | Time to Politicization: The Emergence and Effects of Politics on Science YouTube Videos

Aspen Omapang, Cornell University

Increasingly, political tensions are seeping into everyday topics. This is evident in science, but also in hobbies and personal interests. The imposition of politics fundamentally changes the flow and dynamics within conversation, and typically not for the better. In this study, we address the act of politicizing science on YouTube. Using data from informational science YouTube videos, we identify the moment of politicization and how it fundamentally changes dialog within conversation threads.

Talk #13 | Phased Technological Practices of Music Therapists

John Osorio, Indiana University

Where most studies on technological practices of music therapists report a general use of tools, in this study we propose a classification of technology use situated in the phases of music therapy (MT) practice. An online survey (n=1,951) revealed trends in diversified and creative assembly of tools for assessment and in-session work, and predominant use of annotation and EMR tools for documentation and evaluation. Design implications are discussed to address the challenges of MT practice.

Talk #14 | U.S. Applicants' Perceptions of College Admissions Algorithms

Cassidy Pyle, University of Michigan

The process by which U.S. universities make admissions decisions is opaque - which the use of algorithms to streamline admissions decision-making exacerbates. We conducted interviews with applicants to U.S. universities and found that while participants acknowledged the possibility of admissions algorithms benefiting universities, they perceived being subjected to these algorithms as harmful and unjust to applicants. We discuss implications for developing and deploying admissions algorithms.

Talk #15 | Different not Deficient: Teaching Inclusive Communication Practices to Allistic Technology Professionals

Naba Rizvi, UC San Diego

Historically, the burden of engaging in cross-neurological social interactions has been placed on autistic people who may go through extensive skills training to learn how to communicate with their allistic peers. To flip this burden, we built a four module course teaching allistic people how to interact with their autistic coworkers. Using informational videos, short skits, and interactive quizzes, our course teaches concrete skills to help neurodiverse team members communicate more effectively.

LIGHTNING TALKS - STINGRAY | ABSTRACTS

Talk #16 | ImageSign: Sign Language Images to Text Generation

Sunday David Ubur, *Virginia Tech*

In advancing research works for automating sign language using machine learning, and promoting communication access for sign language users and the general public, this work developed a CNN model, with the Sign Language MINST dataset obtained from Kaggle, to generate text from the sign language dataset. The experiment result yielded 96% accuracy, and this was further validated using a confusion matrix.

Talk #17 | Personalizing Visualizations for Learning

Fernando Yanez, *University of Toronto*

Information Visualization is an area of Human-Computer Interaction that studies how data can be represented visually to support communication and exploration. Within this area, the field of user-adaptive visualizations investigates how visualizations can be personalized for different users. We aim to build user-adaptive visualizations that support different levels of user knowledge and cognitive abilities when learning from visual aids while providing personalization based on their preferences.

Talk #18 | Human-AI Co-orchestration of Dynamic Transitions between Individual and Collaborative Learning

Kexin Yang, *Carnegie Mellon University*

Enabling students to dynamically transition between individual and collaborative learning activities has great potential to support better learning. We explore how technology can support teachers in orchestrating dynamic transitions during class. We study how to balance teachers and students' unique preferences on control, agency and boundaries when collaborating with AI systems.

Talk #19 | Age-Appropriate Privacy Protections for Youth on Social Media

Gowri Balasubramaniam, *University of Illinois, Urbana Champaign*

I will present my work outlining the gaps in policy protections, by policy and design, for young people online. I will present an overview of an exploratory analysis of TikTok's privacy policy to discern to what extent it protects the rights of children outlined by the United Nations.

LIGHTNING TALKS - STINGRAY | ABSTRACTS

Talk #20 | Insider Threat Mitigation Framework Using Moving Target Defense And Attribute Based Access Control

Olusesi Balogun, *Georgia State University*

Insider Threat is a significant and potentially dangerous security issue in corporate settings. In this work, we combine moving target defense (MTD), deception, and attribute-based access control to make it more difficult and expensive for an insider to gain unauthorized access. Essentially, we introduce the concept of correlated attributes into ABAC and extend the ABAC model with MTD by generating mutated policy using the correlated attributes for insider threat mitigation.

Talk #21 | Understanding user security practices through rituals

Sulagna Mukherjee, *University of Southern California*

Human error is responsible for over 95% of data breaches around the world. Assuming rational user behavior obscures the non-rational steps people follow in their workflow. We look at the dynamic behavior of users in their regular working process. Social science studies show that humans, as individuals and groups, follow ritualized practices diligently. We explore the application of rituals to affect user perception of security best practices that would be more relatable and rewarding for them.

Talk #22 | Zoom Audio Transcription Accuracy for African American Vernacular English

Christina Chance, *University of California, Los Angeles*

As telecommunication is becoming a growing part of society, there is a concern for reliability and accuracy for all users. African American Vernacular English (AAVE) has been a dialect forgotten by the Machine Learning community, thereby making most speech recognition tools less accurate for Black speakers. This study explores Zoom's closed captioning services for both AAVE and Standard American English (SAE) to assess the accuracy amongst regional forms of AAVE as well as compare the overall ac

Talk #23 | Automatic Question-Answer Generation for Education

Hannah Gonzalez, *University of Pennsylvania*

Scientific evidence shows spaced repetition is enormously effective, so automatically creating flashcards could enhance student retention. Current question generation models are limited because they tend to produce irrelevant questions. Prior studies summarize the text and then input the summary to the model. We hope to use a state-of-the-art language model, GPT-3, to generate better questions from machine-written summaries. This would exponentially reduce manual work, time, and project costs.

LIGHTNING TALKS - STINGRAY | ABSTRACTS

Talk #24 | Low-resource natural language processing and speech processing for African languages

Tolúlopẹ̀ Ògúnṛẹ̀mí, *Stanford University*

Recent advancements in Natural Language Processing (NLP) and Speech Processing have shown that data-hungry architectures provide the best results for languages with many resources e.g. French. What then happens with low-resource languages? We look at how both pre-training and finetuning of BERT and wav2vec 2.0 architectures can be used to enable speech and natural language processing tasks in various African languages.

Talk #25 | How much we can improve classroom's orchestration system using data?

Bahar Shahrokhian Ghahfarokhi, *Arizona State University*

One of the orchestration system main goals is to improve classroom quality by providing real-time data-driven feedback to the teacher and students. My Research is focused on enriching these feedbacks by considering different multimodal data as an input to the orchestration system.

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