Meeting of the ECE Advisory Board
June 11, 2021

Joseph JaJa

DEPARTMENT OF
ELECTRICAL &
COMPUTER ENGINEERING

Sanghamitra Dutta

New Assistant Professor, starting Fall 2022

Education: Ph.D., Carnegie Mellon University, May 2021.

Research Interests:

- Machine learning, information theory & coding theory, causality, and statistics.

- Focus on high-stake applications such as hiring, education, and healthcare (**algorithmic fairness**, **explainability**, **policy** & **law)**.

- Reliable distributed computing (led to the emerging area of “coded computing”)

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Foundations of Fair & Reliable Machine Learning for High-Stakes Applications

Information & Coding Theory

Causal Inference

Probability & Statistics

Lawful Hiring

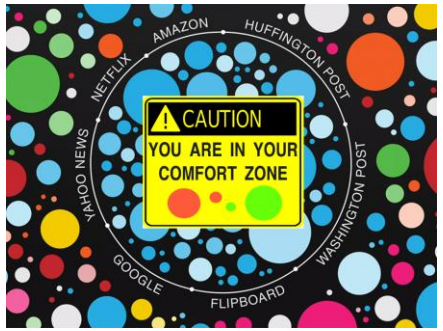
Design/Audit of Resume Classifier, Ranking, Ads, etc.

Education, Lending

Explain sources of bias, Recommend interventions, Policy Implications

Social Media

Understanding Filter Bubbles & Polarization



Reliable Computing

Internet of Things
Federated Learning

Privacy

Robustness

Crowdsourcing

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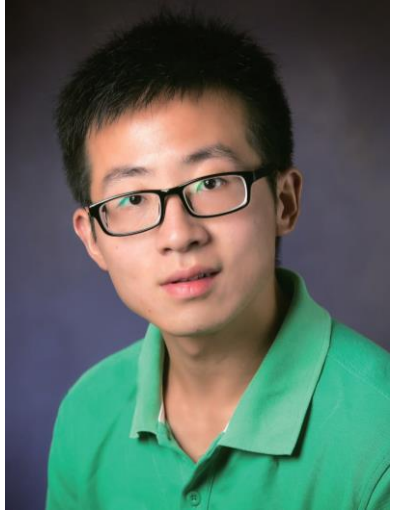
Kaiqing Zhang

New Assistant Professor, starting Fall 2022



Education: University of Illinois at Urbana-Champaign, Ph.D, 2021

Research Interests: Machine/Reinforcement Learning; Multi-agent systems; Game Theory; Control Theory.

- Theoretical foundations for large scale, reliable autonomy: learning algorithms and systems that address *sequential-decision-making* problems, in the presence of multiple decision-makers.
- Applications: intelligent and distributed cyber-physical systems, in robotics, smart grid, and transportation systems.

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Towards Safe and Large-scale Autonomy

Learning

Game Theory

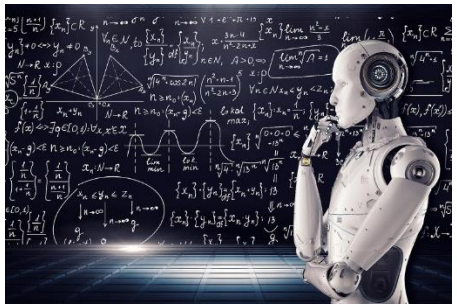
AI-enabled Autonomy

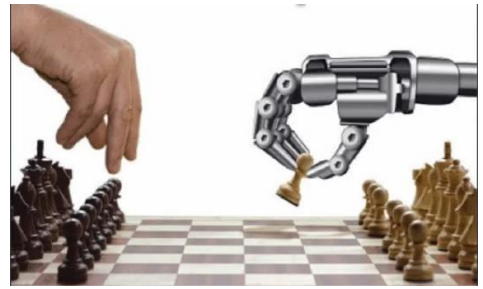
Data-driven

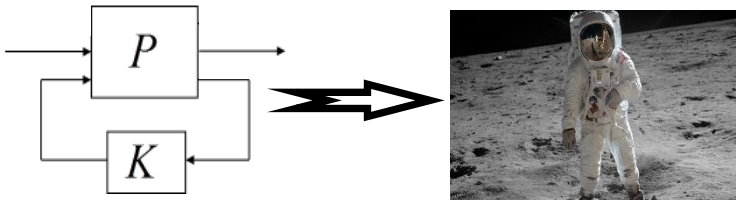
Multi-agent decision-making

Systems

Control







New EE Curriculum

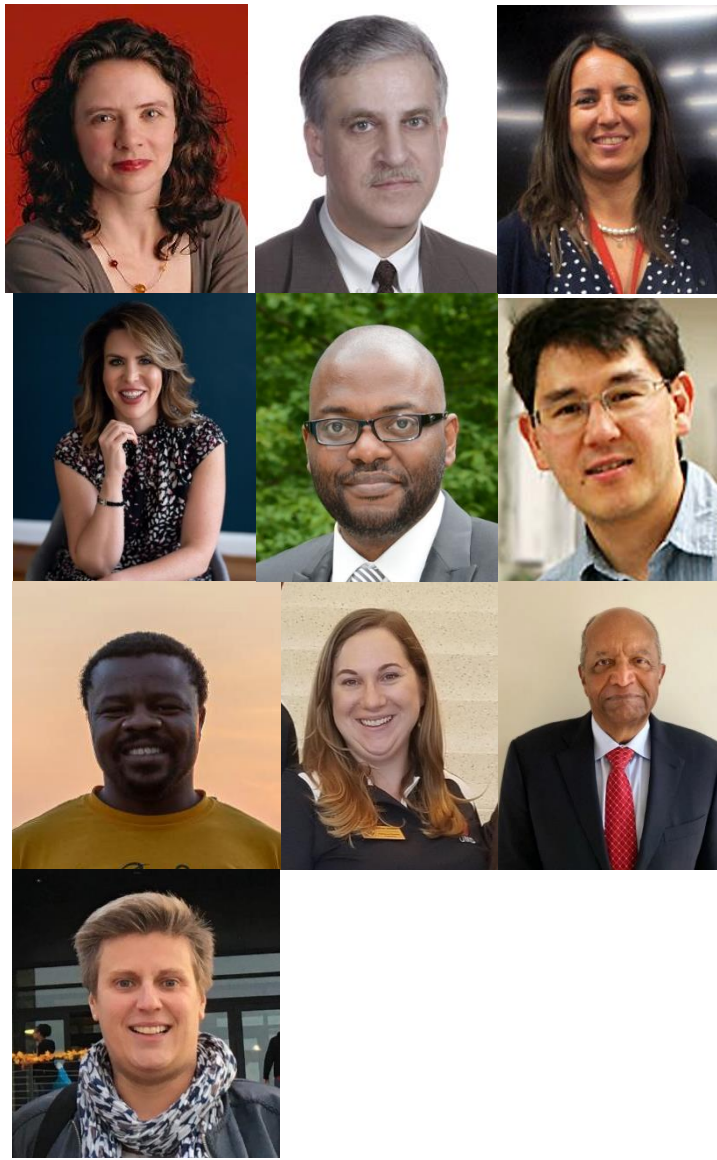
- Add flexibility and modernize curriculum
    - One required ECE course per area in junior year plus new elective courses at the junior and senior years with hands-on experience.
- Allow possibility of area/specialization tracks
- Increase retention and facilitate graduation rates
- Prepare students for real world and life-long learning
- Satisfy ABET and University Requirements

Revamped ECE Honors Program

- Less focus on courses and additional participation requirement in experiential learning and/or service learning.
- Experiential Learning: university-based or industrial-based research project with a final oral presentation and a thesis.
- Service Learning: students must login at least 75 hours of service learning and take ENEE 399 (Leadership, Creativity, and Service Learning).

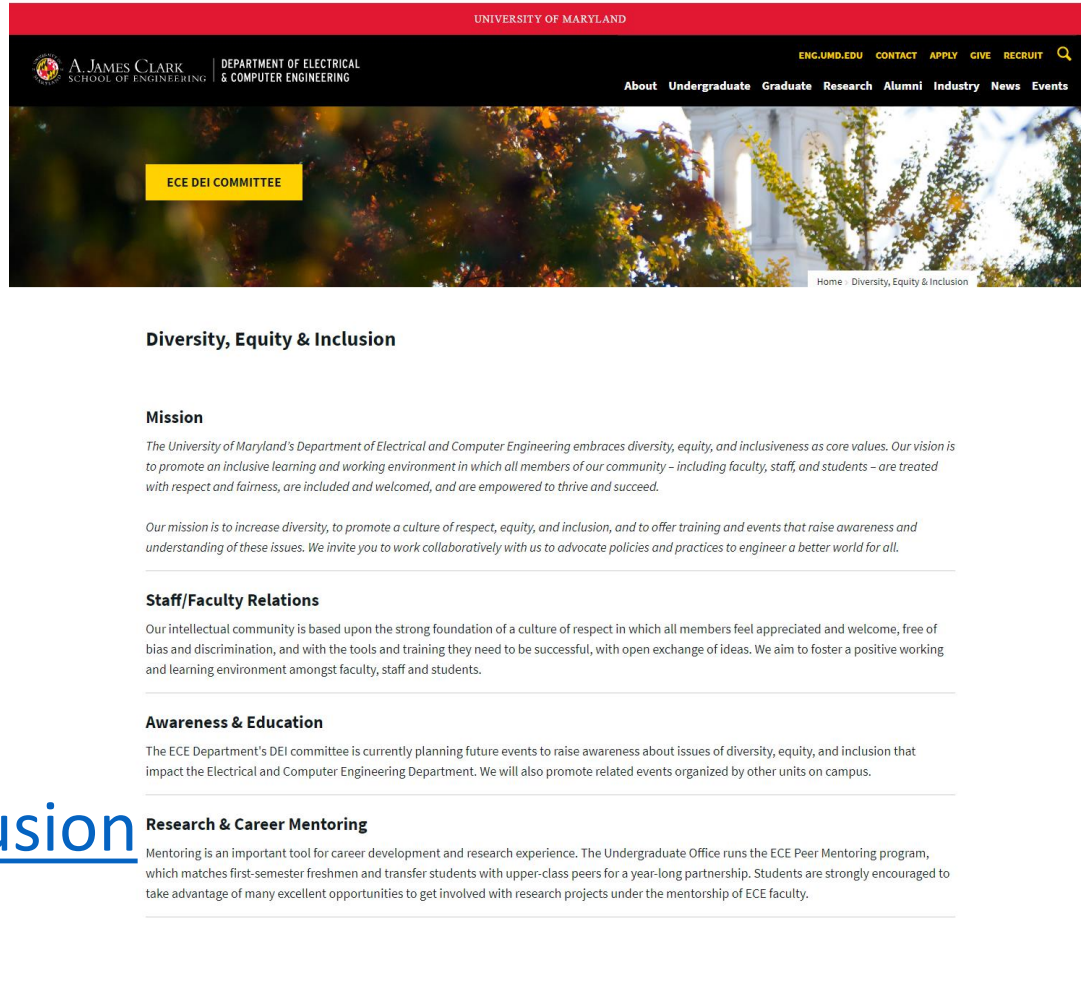
Diversity, Equity, and Inclusion Committee

- Pamela Abshire, ADVANCE Professor
- Eyad Abed, Professor
- Yanne Chembo, Professor
- Timothy Horiuchi, Professor
- Kristin Little, Director of Finance and Business Services
- Cassandra Mendez, Business Manager
- Franklin Nouketcha, ECEGSA President and PhD Student
- Percy Pierre, Adjunct Faculty Member
- Amanda Stein, Director of External Relations
- Crystal Umaru, Assistant Director of Finance & Business Services
- Miranda Van Iersel, Visiting Associate Research Scientist
- Kathryn Weiland, Director of Undergraduate Studies



DEI Committee Subgroups

- DEI Policies
- Equity in Teaching
- Staff/Faculty Relations
- Events & Training
- Research & Career Mentoring
- Recruitment
- Diversity Resources & Services
- https://ece.umd.edu/Diversity-Equity-Inclusion
- https://ece.umd.edu/ece-dei-committee



Draft DEI Mission & Vision for ECE

The University of Maryland's Department of Electrical and Computer Engineering embraces diversity, equity, and inclusiveness as core values. Our vision is to promote an inclusive learning and working environment in which all members of our community – including faculty, staff, and students – are treated with respect and fairness, are included and welcomed, and are empowered to thrive and succeed.

Our mission is to increase diversity, to promote a culture of respect, equity, and inclusion, and to offer training and events that raise awareness and understanding of these issues. We invite you to work collaboratively with us to advocate policies and practices to engineer a better world for all.

Update on Recently Developed Programs

- B.S. in Embedded Systems and IoT at Shady Grove – students successfully completed their first year.
- Undergraduate Academy of Machine Learning – officially starting the capstone design course next year.
- M.S. in Machine Learning, joint with CS, up to a very good start

Selected Faculty Recognition

- Prof. Sennur Ulukus receives IEEE ComSoc TCGCC Distinguished Technical Achievement Recognition Award.
- Prof. Alireza Khaligh wins 6th Nagamori Award
- Profs Rama Chellappa, Ray Liu, and Dinesh Manocha Ranked Top Scientists in the World by Guide2Research.
- Prof. Chembo elected to IEEE Photonics Society Board of Governors, and Profs. Jacob and Qu elected IEEE Fellows.
- Carol Espy-Wilson receives Campus Woman of Influence Award

Much More Can be Done with More Resources

- Fellowships to recruit students from under-represented groups
- Support for tutoring/mentoring undergraduate students
- Support for lab upgrades in design and project oriented courses – Machine Learning program
- Graduate fellowships to attract domestic students

Conclusion

- Department doing very well overall in terms of education and research: new and revised courses, more proposals, and more external funding for research.
- All new programs are up to a very good start, and currently developing new programs and enhancing existing ones.
- Confronting significant challenges due to faculty loss and very limited discretionary funds