Joshua Peeples, Ph.D.

Accountability, Climate, Equity, and Scholarship Faculty Fellow · Electrical and Computer Engineering

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Research Interests

Machine Learning, Deep Learning, Texture Analysis, Pattern Recognition, Computer Vision, Image Processing

Education

University of Florida *Gainesville, FL*

PhD Electrical and Computer Engineering *June 2017 - May 2022*

- Advisor: Dr. Alina Zare
- Dissertation: "Connecting the Past and the Present: Histogram Layers for Texture Analysis"

University of Florida *Gainesville, FL*

MS Electrical and Computer Engineering *June 2017 - Dec 2019*

University of Alabama at Birmingham *Birmingham, AL*

BS Electrical Engineering (Minor: Mathematics) *Aug 2013 - April 2017*

- Magna Cum Laude

Professional Experience

Texas A&M University Department of Electrical and Computer Engineering *College Station, TX*

Accountability, Climate, Equity, and Scholarship (ACES) Faculty Fellow *Aug 2022 - Present*

- Title of Visiting Assistant Professor
- Responsible for teaching one course per academic year, with dedicated research time
- Actively involved with mentoring from senior faculty and building community among ACES Fellows

United States Air Force Research Laboratory *Dayton, Ohio*

Summer Faculty Fellow *June 2023 - July 2023*

- Developed computer vision methods to analyze cell toxicity
- Provided updates to program sponsor through presentations and document progress throughout project
- Created code base and assisted in curation of dataset for scanning electron microscope images of lung cells for texture analysis in relation to cell response to different exposures

University of Florida Machine Learning and Sensing Laboratory *Gainesville, FL*

Postdoctoral Researcher *May 2022 - July 2022*

- Extended histogram layer(s) to mimic handcrafted feature descriptors through network design
- Led in manuscript writing for publication in scientific journals and/or presentations
- Assisted in documentation of project progress for reports to funding agencies

University of Florida Machine Learning and Sensing Laboratory *Gainesville, FL*

Graduate Research Assistant *June 2017 - May 2022*

- Developed automated machine learning approaches for seafloor segmentation and scene understanding
- Designed and implemented novel deep learning layers focused on texture analysis
- Supervised undergraduate students on research projects
- Disseminated results of research through publications, presentations, and reports to funding agencies

Naval Research Enterprise Internship Program *Panama City, FL*

Graduate Summer Research Intern (Virtual) *May 2021 - Aug 2021*

- Led project entitled "Deep, Regularized Histogram-based Features for Seafloor Segmentation and Classification"
- Assisted in curation of ground truth labels for semantic segmentation of circular synthetic aperture sonar (CSAS) imagery
- Developed algorithms to identify various environments in synthetic aperture sonar (SAS) imagery

Michigan State University Summer Research Opportunities Program *East Lansing, MI*

Undergraduate Summer Research Intern *May 2016 - July 2016*

- Participated in a 10-wk residential program for students interested in graduate study
- Attended a week-long short course in statistics and R Studio software
- Utilized multiple datasets to develop an improved algorithm for lane detection
- Selected for travel award to present research at Emerging Researchers National Conference in STEM

University of Alabama at Birmingham Signal Processing and Embedded Systems Laboratory *Birmingham, AL*

Undergraduate Research Assistant *Jan 2014 - Dec 2016*

- Performed image processing techniques for a project that involved topics such as facial detection and recognition
- Worked with Arduino software that was implemented to various technologies such as a robotic arm, sensors, and Bluetooth
- Designed and interpreted circuit diagrams to properly implement hardware designs

Publications

+ students advised by J. Peeples

In Review

1. **J. Peeples**, S. Al Kharsa, L. Saleh, and, A. Zare, "Histogram Layers for Neural Engineered Features," in Review. doi: arXiv:2403.17176.

Peer-Reviewed Journal Articles

5. **J. Peeples**, W. Xu, R. Gloaguen, D. Rowland, A. Zare, and Z. Brym, "Spatial and Texture Analysis of Root System Distribution with Earth Mover's Distance (STARSEED)," in *Plant Methods* 19, 2023. doi: 10.1186/s13007-022-00974-z.

4. **J. Peeples**, J. Jameson, N. Kotta, J. Grasman, W. Stoppel, and A. Zare, "Jointly Optimized Spatial Histogram UNET Architecture (JOSHUA) for Adipose Tissue Segmentation," in *BME Frontiers Special Issue: AI for Advanced Biomedical Applications*, vol. 2022, doi: 10.34133/2022/9854084.

3. **J. Peeples**, S. Walker, C. McCurley, A. Zare, J. Keller, and W. Xu, "Divergence Regulated Encoder Network for Joint Dimensionality Reduction and Classification," in *IEEE Geoscience and Remote Sensing Letters*, vol. 19, pp. 1-5, 2022, Art no. 3511305, doi: 10.1109/LGRS.2022.3156532.

2. R. Gloaguen, Z. Brym, **J. Peeples**, W. Xu, C. Hyen-Chung, and D. Rowland, "The Plasticity of Early Root Development in Sesamum indicum L. as Influenced by Genotype and Water Availability", in *Rhizosphere*. Elsevier BV, 2022, doi: 10.1016/j.rhisph.2021.100457.

1. **J. Peeples**, W. Xu, and A. Zare, "Histogram Layers for Texture Analysis," in *IEEE Transactions on Artificial Intelligence*, vol. 3, no. 4, pp. 541-552, Dec. 2021, doi: 10.1109/TAI.2021.3135804.

Conference Proceedings

11. A. Mohan^{+} and **J. Peeples**, "Lacunarity Pooling Layers for Plant Image Texture Analysis," in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, 2024, in Press, doi: arXiv:2404.16268.

10. F. Safdarian, **J. Peeples**, D. Richards, and T. Overbye, "A Fast Learning-Based Unit Commitment Strategy with AC Optimal Power Flow for Large Grids with Direct Inclusion of Weather", IEEE Kansas Power and Energy Conference (KPEC), 2024, in Press.

9. J. Ritu^{+}, E. Barnes^{+}, R. Martell, A. V. Dine, and **J. Peeples**, "Histogram Layer Time Delay Neural Network For Passive Sonar Classification," in *IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, 2023. doi: 10.1109/WASPAA58266.2023.10248102 .

8. A. Mohan^{+} and **J. Peeples**, "Quantitative Analysis of Primary Attribution Explainable Artificial Intelligence Methods for Remote Sensing Image Classification," in *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2023, pp. 950-953, doi: 10.1109/IGARSS52108.2023.10281981.

7. **J. Peeples**, A. Zare, J. Dale, and J. Keller, "Histogram Layers for Synthetic Aperture Sonar Imagery," in *IEEE International Conference on Machine Learning and Applications (ICMLA)*, Nassau, Bahamas, 2022, pp. 176-182, doi: 10.1109/ICMLA55696.2022.00032.

6. **J. Peeples**, C. McCurley, S. Walker, D. Stewart, and A. Zare, "Learnable Adaptive Cosine Estimator (LACE) for Image Classification," in *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, 2022, pp. 3479-3489, doi: 10.1109/WACV51458.2022.00381.

5. D. Prioleau, K. Alikhademi, A. Roberts, **J. Peeples**, A. Zare, and J.E. Gilbert, "Use of Divisive Clustering for Reducing Bias in Training Data," in *International Conference on Machine Learning and Data Mining (MLDM)*, 2021, pp. 115-131. P-ISSN 1864-9734, E-ISSN 2699-5220, ISBN 978-3-942952-81-1.

4. S. Walker, **J. Peeples**, J. Dale, A. Zare, and J. Keller, "Explainable Systematic Analysis for Synthetic Aperture Sonar Imagery," in *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2021, pp. 2835-2838. doi: 10.1109/igarss47720.2021.9554901.

3. **J. Peeples**, M. Cook, D. Suen, A. Zare, and J. Keller, "Comparison of Possibilistic Fuzzy Local Information C-Means and Possiblisitic K-Nearest Neighbors for Synthetic Aperture Sonar Segmentation," in *Detection and Sensing of Mines, Explosive Objects, and Obscured Targets XXIV*, vol. 11012. International Society for Optics and Photonics (SPIE), 2019, p. 110120T. doi: 10.1117/12.2519484.

2. A. Starke, J. McNair, R. Trevizan, A. Bretas, **J. Peeples**, and A. Zare, "Toward Resilient Smart Grid Communications using Distributed SDN with ML-Based Anomaly Detection," in *International Conference on Wired & Wireless Internet Communications*. Springer, 2018, pp. 83-94. doi: 10.1007/978-3-030-02931-9_7.

1. **J. Peeples**, D. Suen, A. Zare, and J. Keller, "Possibilistic Fuzzy Local Information C-means with Automated Feature selection for Seafloor Segmentation," in *Detection and Sensing of Mines, Explosive Objects, and Obscured Targets XXIII*, vol. 10628. International Society for Optics and Photonics (SPIE), 2018, p. 1062812. doi: 10.1117/12.2305178.

Sponsored Research

Total amount awarded in funded projects: $613,316 **Faculty Portion**: $513,316

Realizing the Full Potential of Respiratory Health Evaluation by Leveraging Machine Learning Models *$150,000*

Sponsor: United States Air Force Research Laboratory *Nov 2023 - Aug 2024*

- Role: Co-Principal Investigator
- Peeples Portion: $50,000

Anomaly Detection in Synthetic Aperture Radar Imagery *$49,460*

Sponsor: Sandia National Laboratories *Oct 2023 - Sept 2024*

- Role: Principal Investigator
- Peeples Portion: $49,460

Multi-modal, Multi-task Data Analysis for Automated Plant Phenotyping *$133,856*

Sponsor: Texas A&M University AgriLife Research *Oct 2022 - Sept 2024*

- Role: Principal Investigator
- Peeples Portion: $133,856

Histogram Layers for Improved Target Classification *$280,000*

Sponsor: Massachusetts Institute of Technology Lincoln Laboratory *Oct 2022 - Sept 2024*

- Role: Principal Investigator
- Peeples Portion: $280,000

Awards, Fellowships, and Honors

Grand total: $527,410 **Undergraduate and Graduate total**: $525,910 **Faculty total**: $1,500

University of Alabama at Birmingham (UAB); University of Florida (UF); Texas A&M University (TAMU)

2022 **Exploration Mini-Grant**, TAMU System National Laboratories Office *$1,500*

2021-22 **Attributes of a Gator Engineer Award for Leadership**, UF Herbert Wertheim College of Engineering

2021-22 **Graduate Excellence Award for Service**, UF Department of Electrical and Computer Engineering

2021	**Inductee**, Edward Alexander Bouchet Graduate Honor Society	
2020-21	**Dr. Joseph S. Rosko Award**, UF Department of Electrical and Computer Engineering	*$ 3,750*
2018-2022	**Graduate Research Fellowship (NSFGRFP)**, National Science Foundation	*$ 144,000*
2018-2021	**NSF External Top-up Award**, UF Graduate School	*$ 26,250*
2018-2022	**Southern Regional Education Board Institute Travel Award**, UF Graduate School	*$ 6,000*
2017-2022	**McKnight Doctoral Fellowship**, Florida Education Fund	*$ 85,000*
2017-2022	**Preeminence Award**, UF Graduate School	*$ 218,130*
2017	**Iva and Norman Tucker Fellowship**, UF Transportation Institute	*$ 4,000*
2017	**Board of Education Summer Fellowship**, UF Office of Graduate Diversity Initiatives	*$ 8,780*
2017	**Green Blazer of Excellence**, UAB Blazer Male Excellence Network	
2017	**President's List (Spring)**, UAB	
2016-17	**Dupuis Leadership Scholarship**, UAB School of Engineering	*$ 1,500*
2016-17	**Cleo and Clara Thomas Academic Scholarship for Excellence**, UAB	*$ 1,000*
2016	**Commitment to Excellence in Tutoring**, UAB Vulcan Material Academic Success Center	
2016	**Dean's List (Spring)**, UAB	
2016	**President's List (Fall)**, UAB	
2016	**Honor Scholar**, UAB Multicultural Scholars Program	
2015	**Dean's List (Spring and Fall)**, UAB	
2015	**Scholar of the Year**, UAB Multicultural Scholars Program	
2014	**Dean's List (Spring)**, UAB	
2013-17	**Vulcan Materials Scholarship**, UAB	*$ 4,000*
2013-17	**Comprehensive Minority Faculty and Student Development Program Scholarship**, UAB	*$ 4,000*
2013-17	**Collegiate Honors Scholarship**, UAB	*$ 16,000*
2013-14	**Scholarship**, The Birmingham Chapter of the American Association of Blacks in Energy	*$ 3,500*

Presentations

** presenting author*

Invited Talks

13. ***J. Peeples**, "Histogram Layers for Statistical Image Texture Feature Learning," in *Texas A&M University Computer Science and Engineering Computer Engineering and Systems Group Seminar*, College Station, TX, April 2024.
12. ***J. Peeples**, "Statistical Texture Feature Learning for Image Analysis," in *Sandia National Laboratories ML/DL Forum*, Albuquerque, NM, December 2022.
11. ***J. Peeples**, "Learnable Adaptive Cosine Estimator (LACE) for Image Classification," in *Los Alamos National Laboratory Seminar*, Los Alamos, NM, November 2022.
10. ***J. Peeples**, "Spatial and Texture Analysis of Root System Distribution with Earth Mover's Distance (STARSEED)," in *Texas A&M University Department of Plant Pathology and Microbiology Seminar*, College Station, TX, October 2022.
9. ***J. Peeples**, "Statistical Texture Feature Learning for Image Analysis," in *Texas A&M University Electrical and Computer Engineering Computer Engineering and Systems Group Seminar*, College Station, TX, September 2022.
8. ***J. Peeples**, "Connecting the Past and Present: Histogram Layers for Texture Analysis," in *Syngenta Computer Vision and Deep Learning Technical Seminar*, Gainesville, FL, Virtual, June 2022.
7. ***J. Peeples**, "Connecting the Past and Present: Histogram Layers for Texture Analysis," in *Massachusetts Institute of Technology Lincoln Lab Seminar Series*, Lexington, MA, Virtual, March 2022.
6. ***J. Peeples**, W. Xu, and A. Zare, "Histogram Layers for Texture Analysis," in *North American Plant Phenotyping Network (NAPPN) AI/ML Workshop*, Athens, GA, February 2022.

5. *__J. Peeples__, "Connecting the Past and Present: Histogram Layers for Texture Analysis," in *Texas A&M University Department of Electrical and Computer Engineering Seminar Series*, College Station, TX, Virtual, February 2022.

4. *__J. Peeples__, "Connecting the Past and Present: Histogram Layers for Image Texture Analysis," in *Los Alamos National Laboratory Seminar*, Los Alamos, NM, Virtual, February 2022.

3. *__J. Peeples__, "Artificial Intelligence for Texture Analysis," in *University of Florida Thompson Earth Systems Institute Scientist in Every Florida School*, Gainesville, FL, Virtual, May 2021.

2. *__J. Peeples__, "Connecting the Past and Present: Histogram Layers for Texture Analysis," in *Boston University Department of Electrical and Computer Engineering Seminar Series*, Boston, MA, Virtual, April 2021.

1. *__J. Peeples__, "Design Your Engineering Career," in *University of Alabama at Birmingham Engineering Young Alumni Series*, Birmingham, AL, Virtual, July 2020.

Oral Presentations

10. ***J. Peeples**, A. Zare, J. Dale, and J. Keller, "Histogram Layers for Synthetic Aperture Sonar Imagery," in *IEEE International Conference on Machine Learning and Applications (ICMLA)*, Nassau, Bahamas, December 2022.

9. *__J. Peeples__, C. McCurley, S. Walker, D. Stewart, and A. Zare, "Learnable Adaptive Cosine Estimator (LACE) for Image Classification," in *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, Waikoloa, HI, Virtual, January 2022.

8. D. Prioleau*, K. Alikhademi*, A. Roberts, **J. Peeples**, A. Zare, and J.E. Gilbert, "Use of Divisive Clustering for Reducing Bias in Training Data," in *International Conference on Machine Learning and Data Mining (MLDM)*, New York, Virtual, July 2021.

7. S. Walker, *__J. Peeples__, J. Dale, A. Zare, and J. Keller, "Explainable Systematic Analysis for Synthetic Aperture Sonar Imagery," in *IEEE International Geoscience and Remote Sensing Symposium*, Brussels, Belgium, Virtual, July 2021.

6. *__J. Peeples__, *J. Jameson, N. Kotta, W. Stoppel, and A. Zare, "Jointly Optimized Spatial Histogram U-NET Architecture (JOSHUA) for Adipose Tissue Identification in Histological Images of Lyophilized Silk Sponge Implants," in *University of Florida Biomaterials Day*, Gainesville, FL, Virtual, March 2021.

5. *R. Gloaguen, **J. Peeples**, W. Xu, Z. Brym, D. Rowland, A. Zare, and H. Chun, "New Approaches to Characterize the Root System Architecture Response of a Drought Tolerant Crop to Varying Soil Moisture Levels," in *ASA-CSSA-SSSA Annual Meeting, C02 Crop Physiology and Metabolism Section, C-2 Graduate Student Oral*, Phoenix, AZ, Virtual, November 2020.

4. ***J. Peeples**, M. Cook, D. Suen, A. Zare, and J. Keller, "Comparison of Possibilistic Fuzzy Local Information C-Means and Possiblisitic K-Nearest Neighbors for Synthetic Aperture Sonar Segmentation," in *Detection and Sensing of Mines, Explosive Objects, and Obscured Targets XXIV*, International Society for Optics and Photonics (SPIE), Baltimore, MD, May 2019.

3. *__J. Peeples__, "Histogram Layer: A Novel Approach to Feature Engineering," in *McKnight Doctoral Mid-Year Research and Writing Conference*, Tampa, FL, February 2019.

2. ***J. Peeples**, D. Suen, A. Zare, and J. Keller, "Possibilistic Fuzzy Local Information C-means with Automated Feature selection for Seafloor Segmentation," in *Detection and Sensing of Mines, Explosive Objects, and Obscured Targets XXIII*, International Society for Optics and Photonics (SPIE), Orlando, FL, April 2018.

1. ***J. Peeples** and A. Zare, "Synthetic Aperture SONAR Soft Segmentation using Possibilistic Fuzzy Local Information C-Means" in *University of Florida Water Institute Symposium*, Gainesville, FL, February 2018.

Poster Presentations

5. ***J. Peeples**, "Advanced Vision and Learning Lab: Pioneering a Data-Driven Future," in *Texas Academy of Medicine, Engineering, Science & Technology (TAMEST) Protégé Poster Challenge*, Austin, TX, February 2024.

4. *__J. Peeples__, *J. Jameson, N. Kotta, W. Stoppel, and A. Zare, "Spatial Histogram Layers in Convolutional Neural Network Models for Adipose Segmentation in Histological Silk Implant Images," in *Biomedical Engineering Society Annual Meeting*, Orlando, FL, October 2021.

3. *__J. Peeples__, "Connecting the Past and Present: Histogram Layers for Texture Analysis," in *Notre Dame Future Faculty Workshop*, South Bend, IL, May 2021.

2. ***J. Peeples**, B. Driggers, G. Contreras, N. Tracht, S. Chen, and M. Bedwell, "Using the Engineering Force: BHAMSolo Senior Design Project," in *University of Alabama at Birmingham Spring Expo*, Birmingham, AL, April 2017.

1. *__J. Peeples__, M. Al-Qizwini, and H. Radha, "LIVE ON: Lane, Sign, and Vehicle Detection in Various Environments," in *Emerging Researchers National (ERN) Conference in STEM*, Washington, D.C., March 2017.

Teaching Experience

Texas A&M University Electrical and Computer Engineering Department *College Station, TX*

Instructor, ECEN 758 Data Mining and Analysis *Aug 2023 - Dec 2023*

- Host two lectures weekly and engage graduate students through active learning
- Prepare and graded assignments, exams, and final project

W.E.B. Du Bois Scholars Institute's Accelerated Learning Academy STEM Program *Princeton, NJ*

Instructor, AI and Computer Science (Virtual) *March 2023 - May 2023*

- Designed comprehensive syllabus, and lesson plans (including hands on interactive and engaging activities)
- Prepared, initiated, and conducted online interactive Saturday workshops and lecture/open discussion based Sunday workshops on societal impacts within AI
- Advised students on academic and vocational curricula and on career issues
- Worked with Senior Program Manager and report to the Chief of Faculty and Executive Director

Texas A&M University Electrical and Computer Engineering Department *College Station, TX*

Instructor, ECEN 289 Machine Learning for Electrical Engineers *Jan 2023 - May 2023*

- Hosted two lectures weekly and engage undergraduate students through active learning
- Prepared and graded assignments, exams, and final project
- Led weekly meetings with teaching assistant

University of Florida Electrical and Computer Engineering Department *Gainesville, FL*

Supervised Teacher, EEL 5840/4930 Fundamentals of Machine Learning *Aug 2019 - Dec 2019*

- Updated lecture notes and held weekly office hours
- Assisted in the preparation and grading of assignments and exams
- Participated in weekly meetings with instructor team

Successful Transition and Enhanced Preparation for Undergraduates Program (Year II) *Gainesville, FL*

Course Co-Instructor, Introduction to Coding and Programming *July 2019 - Aug 2019*

- Led lectures to introduce core concepts for programming and Python to incoming engineering students
- Developed course syllabus, assignments, and project

Successful Transition and Enhanced Preparation for Undergraduates Program (Year I) *Gainesville, FL*

Course Co-Instructor, Machine Learning *July 2018 - Aug 2018*

- Led lectures to introduce machine learning and remote sensing to incoming engineering students
- Coordinated activities of class with program director and trained teaching assistants in preparation of course

University of Alabama at Birmingham Vulcan Material Academic Success Center *Birmingham, AL*

Supplemental Instruction Leader, Calculus based Physics II *Jan 2015 - April 2015*

- Created an intensive learning environment for undergraduate students by hosting two weekly SI sessions (75 minutes per session)
- Constructed weekly worksheets and mock exams to prepare students for class
- Maintained a constant interaction with the professor to properly align supplemental materials with course information and requirements

University of Alabama at Birmingham Vulcan Material Academic Success Center *Birmingham, AL*

Tutor, Electrical circuits, Mathematics, and Physics *Aug 2014 - April 2017*

- Assisted students in difficult subjects by working through conceptual and quantitative problems
- Led approximately 10 one-hour sessions per week with undergraduates
- Participated in training sessions to become an Associate in the Tutoring Profession (ATP) certified Associate Tutor

Mentoring

2023-pres	**Champagne, J.**, Undergraduate Student, Texas A&M University *Notes*: supervise Honors Research
2023-pres	**Al Kharsa, S.**, Undergraduate Student Technician, Texas A&M University *Notes*: supported through startup funds
2023-pres	**Mohan, A.**, Graduate Student Technician (Master's Student), Texas A&M University *Notes*: supported through start up funds and *Multi-modal, Multi-task Data Analysis for Automated Plant Phenotyping*

2023-pres **Zambre, Y.**, Graduate Research Assistant (Master's Student), Texas A&M University
Notes: supported through *Multi-modal, Multi-task Data Analysis for Automated Plant Phenotyping*

2023-pres **Ritu, J.**, Graduate Research Assistant (PhD Student), Texas A&M University
Notes: supported through *Histogram Layers for Improved Target Classification*

2023 **Masabarakiza, I.**, Undergraduate Student Technician, Texas A&M University
Notes: supported through *Histogram Layers for Improved Target Classification*

2022-2023 **Barnes, E.**, Undergraduate Research Assistant, Texas A&M University
Notes: supported through *Histogram Layers for Improved Target Classification*

2021-22 **Rupireddy, V.**, UAB Young Alumni Mentee (Master's student), University of Alabama Birmingham

2021-22 **Sajja, S.**, UAB Young Alumni Mentee (Master's student), University of Alabama Birmingham

2020-21 **Wilkerson, P.**, UAB Young Alumni Mentee, University of Alabama Birmingham,
Achievements: internship for Spring 2021 with TriAltus Bioscience, graduated Spring 2021, hired as Suture Manufacturing Engineer at Arthrex

2019-21 **Walker, S.**, Undergraduate Research Assistant, University of Florida,
Achievements: Selected for University Research Scholar Program, published two manuscripts, graduated Spring 2021, accepted into UC San Diego as a Master's student studying Computer Science with a focus in AI

2019-20 **Zhao, H.**, Undergraduate Research Assistant, University of Florida,
Achievements: Graduated Fall 2020, hired as Software Engineer at Capital One

2019 **Tran, T.**, Graduate Research Assistant (Master's student), University of Florida,
Achievements: Graduated Fall 2020, hired as Program Manager at Microsoft

2019 **Kim, T.**, Student Science Training Program (High School student), University of Florida,
Achievements: won Best Paper Award, accepted into Columbia University Fu Foundation School of Engineering and Applied Science

Leadership, Outreach, & Professional Development

Professional Service and Outreach

AI, ChatGPT, and Teaching (ACT) Task Force, College of Engineering *College Station, TX*
Member *Jan 2023 - March 2023*

- Focus on topics at the intersection of AI and higher education, with a particular emphasis on ChatGPT
- Raise awareness among faculty members of AI tools and their capabilities
- Provide tactical advice on how to design assessment mechanisms that take advantage of AI

Envisioning 2050 in the Southeast: AI-Driven Innovations in Agriculture *Auburn, AL*
Poster Judge *March 2022*

- Evaluated posters for the General and Cotton Incorporated Innovation Challenge sections
- Completed rubrics for each poster and provided feedback to participants

University of Florida Aspire STEMM Equity Achievement Change Executive Committee *Gainesville, FL*
Graduate Student Representative *July 2021 - April 2022*

- Assist with American Association for the Advancement of Science (AAAS) and the Association of Public and Land-grant Universities (APLU) effort to effect sustainable change to promote diversity, equity, and inclusion in science, technology, engineering, mathematics, and medicine (STEMM)
- Review project outputs such as surveys, audacious goals, and action plan
- Meet monthly to give feedback and perspective on ongoing work within the larger institutional context

IEEE Geoscience and Remote Sensing Society (GRSS) Boston Hackathon (Virtual) *Boston, MA*
Judge *July 2021 - August 2021*

- Documented scores and maintained communication with the IEEE GRSS Boston Chair
- Used expertise to provide constructive feedback and assessment of contest entries

University of Florida Bouchet Spring Symposium *Gainesville, FL*

Co-Organizer *March 2021 - April 2021*

- Coordinated with team to organize theme and events for symposium
- Served on "Beyond a Scholar" panel to share research experience and journey
- Co-hosted research presentation session (Lightning Talks)

University of Alabama at Birmingham School of Engineering Young Alumni Mentorship Program *Birmingham, AL*

Mentor *July 2020 - April 2022*

- Provided academic guidance, career advice and personal development to current UAB student(s)
- Maintained regular contact with mentee through two monthly, virtual meetings
- Documented interactions with mentee and provide feedback to Program Manager and Alumni Advisory Board

University of Florida Board of Education Summer Fellowship Program *Gainesville, FL*

Peer Advisor *July 2020 - Aug 2020*

- Served as mentor for incoming underrepresented graduate students
- Assisted in planning and leading program events with other Peer Advisors and Program Coordinator
- Led group of seven engineering students and documented their progress through weekly reports

University of Florida Student Science Training Program (SSTP) *Gainesville, FL*

Mentor *June 2019 - July 2019*

- Developed research project for high school student participant
- Assisted and provided feedback for program deliverables (paper, poster, and presentation)
- Served as primary mentor for the participant which culminated in the student earning the SSTP Best Paper Award

McKnight Doctoral Mid-Year Research and Writing Conference *Tampa, FL*

Computer Science Panel Chair *June 2018 - Feb 2019*

- Recruited panelists to present their research during discipline-specific session
- Moderated discussion and feedback on presentations from expert discussants
- Collected and documented feedback on the session from panelists and audience to share with conference team

Leadership Experience

African/African American/African Diaspora in Electrical and Computer Engineering *Gainesville, FL*

President *Aug 2020 - April 2022*

- Led organization that provides community and support for Black undergraduate and graduate students in the department
- Facilitated monthly executive board meetings and allocate duties among officers

Machine Learning and Sensing Laboratory *Gainesville, FL*

Social Media Manager *Aug 2020 - Aug 2021*

- Maintained and created content for the lab's Twitter and Facebook accounts to raise awareness of research and outreach activities

Machine Learning and Sensing Laboratory *Gainesville, FL*

Outreach Coordinator *Aug 2019 - July 2020*

- Created and organized opportunities to share the lab's research with others in the community (i.e., laboratory tours)

Electrical and Computer Engineering Graduate Student Organization *Gainesville, FL*

Secretary *April 2019 - April 2020*

- Recorded meeting notes and oversaw calendar of events
- Maintained listserv and reserved spaces for all activities of the organization

Gator McKnights Unite *Gainesville, FL*

President *April 2018 - April 2019*

- Led graduate student organization responsible for providing personal and professional development opportunities for African American and Latinx graduate students
- Organized monthly executive board meetings and regulate the general functioning of the executive board and organization

Electrical and Computer Engineering Graduate Student Organization *Gainesville, FL*

Faculty and Staff Liason *Jan 2018 - April 2018*

- Chaired social events to promote community in the ECE department (*e.g.*, faculty/staff mixer)

Machine Learning and Sensing Laboratory *Gainesville, FL*

Departmental Representative *Aug 2017 - June 2019*

- Served as liaison between the department and lab by actively participating in departmental events

University of Alabama at Birmingham Institute of Electrical and Electronics Engineers *Birmingham, AL*

Vice Chair *June 2016 - April 2017*

- Assisted the Chapter Chair in following up on assigned committee responsibilities
- Performed all functions of the Chapter Chair in their absence or upon request

University of Alabama at Birmingham School of Engineering *Birmingham, AL*

Leadership Scholar *June 2016 - April 2017*

- Led tours of the engineering building for prospective students
- Actively participated in several events throughout the year such as recruitment, award ceremonies, and meetings

University of Alabama at Birmingham Multicultural Scholars Program *Birmingham, AL*

President *Aug 2014 - April 2017*

- Coordinated activities of the executive committee, which included oversight of the duties of executive committee members
- Served as the liaison between the executive body and program director
- Assisted students in identifying funding opportunities as co-Chair of the scholarship committee

University of Alabama at Birmingham Blazer Male Excellence Network *Birmingham, AL*

Mentor *Aug 2014 - April 2017*

- Served as a role model, counselor, and motivator for incoming freshmen Black male students
- Collaborated with other mentors for social and volunteer activities of organization

Professional Development and Workshops

2022-23 **TAMU ADVANCE Scholars Program**, selected for program for early-career tenure-track faculty to develop a network that promotes work-life balance through support and guidance from peers, mentors, colleagues, and higher education leaders.

2021 **SEC Emerging Scholars Program**, selected for virtual workshop to provide professional development and networking opportunities for current doctoral students and a limited number of postdoctoral researchers considering careers in higher education.

2021 **Rochester Institute of Technology (RIT) Future Faculty Career Exploration Program**, selected to participate in rigorous three-day virtual program designed for African American, Latino American, and Native American scholars and artists to experience a “behind the scenes” glimpse into life as a faculty member at RIT.

2021 **Notre Dame Future Faculty Workshop**, invited to on-campus program to share research through poster presentation and engaged in panel discussions regarding academic hiring process.

2021 **Auburn University Preparing Future Faculty Workshop**, participated in interactive, virtual sessions to provided more insight into seeking academic positions.

2021 **EGS6056 Engineering Supervised Teaching**, supplemented graduate students teaching activities to learn practical skills to become effective instructors.

2021 **EGS6933 Engineering Faculty Development**, detailed preparation for careers in academia through exploration and experiential learning.

2020 **NextProf Nexus Workshop**, provided participants the opportunity to explore and prepare for a faculty position. The program is part of a nationwide effort to strengthen and diversify the next generation of academic leaders in engineering.

2020 **McKnight Webinar Series: Best Practices for Obtaining Faculty/Postdoc Positions**, presented comprehensive process of applying for faculty and postdoctoral vacancies as well as provide feedback on application materials.

2019-20 **Assistant Grant Writer**, responsible for editing, reviewing, and organizing documents for National Science Foundation AI Institute proposal (not awarded)

Conference and Journal Peer Review

IEEE/CVF Computer Vision and Pattern Recognition Vision in Agriculture Workshop
IEEE Transactions on Fuzzy Systems
Computers and Electronics in Agriculture
IEEE Transactions on Artificial Intelligence
IEEE Journal of Oceanic Engineering
The Plant Phenome Journal
IEEE Geoscience and Remote Sensing Letters

Professional Memberships

2018-Pres.	Association for Computing Machinery (ACM)
2017-Pres.	National Society of Black Engineers (NSBE)
2017-Pres.	Order of the Engineer
2016-Pres.	Institute of Electrical and Electronics Engineers (IEEE)
2015-Pres.	National Society of Leadership and Success (NSLS)