

DIANDRA W. PRIOLEAU

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EDUCATION

University of Florida *August 2017 - Present*
PhD Student - Computer Science Overall GPA: 3.87/4.0
Department of Computer & Information Science & Engineering
Research Interests: Machine Learning (ML), Algorithmic Bias & Fairness, AI/ML for Social Good

University of Florida *August 2017 - December 2020*
Master of Science in Computer Science Overall GPA: 3.87/4.0

Florida Agricultural & Mechanical University *August 2013 - April 2017*
Bachelor of Science in Computer Engineering Overall GPA: 3.94/4.0
Minor in Computer Science

TECHNICAL STRENGTHS

Computer Languages	C/C++, Python, Java
Software & Tools	RStudio, MATLAB, Visual Studio, Eclipse, DialogFlow
Operating Systems	Windows, Linux, UNIX
UI/UX Skills	Interviews, Focus Groups, Personas & Scenarios, Storyboarding, Affinity Diagramming, Wireframes (InVision), Low & High-Fidelity Prototyping

EXPERIENCE

Human Experience Research Lab August 2017 - Present
Research Assistant *Gainesville, FL*

- Evaluating algorithmic fairness within machine learning application in healthcare
 - Surveyed the applications of machine learning for diabetes prediction and diagnosis
- Impact of social networking technology on social movements surrounding racially-sensitive incidents
 - Examining the narratives of Twitter posts using ML applications to evaluate the topics and sentiment/polarity of posts (i.e., topic modeling - Latent Dirichlet Allocation (LDA) & Hierarchical Dirichlet; sentiment analysis - VADER)
 - Evaluating the impact of emoji in understanding the context and sentiment of posts
 - Leading project and task management for team members
- Assessed how to mitigate bias in training sets for machine learning application
 - Applied an algorithm originally created to increase diversity within college admission to mitigate sample bias and compared to commonly used under-sampling techniques
 - Coded scripts in Python to evaluate model performance of using different under-sampling techniques
 - Evaluated the representativeness and diversity of the training sets before and after applying the different under-sampling techniques
- Researched students' perceptions of the social implications of potential ethically-dilemma technologies
 - Formulated idea and collaborated with 3 members within my lab and a PhD student from the Linguistics department from my university to help design and implement human subjects research study
 - Responsible for task management
 - Helped to qualitatively analyzed responses using MAXQDA

- Completed and oversaw IRB protocol for the study
- Researched the transportation struggles of rural communities and its potential impact on AV adoption within these communities
 - Formulated idea and responsible for task management
 - Surveyed papers discussing transportation policy, transportation infrastructure, the impact of transportation on marginalized communities (e.g., minority populations, disabled people), and the financial impact of transportation within rural communities
 - Led and mentored undergraduate student helping on the project
- Evaluated public’s trust of technologies and systems that utilize artificial intelligence or machine learning techniques
 - Helped to design human subjects research study
 - Helped to quantitatively analyze responses within RStudio

IBM Research

May 2021 - August 2021

Research Intern

- Assessed the algorithmic fairness of predicting hospital mortality based on severity scores
- Evaluated 2 different types of fairness measure (group fairness and intersectional fairness)
- Applied bias mitigation algorithms to evaluate their impact on group and intersectional fairness

IBM T.J. Watson Research Center

May 2019 - August 2019

Research Intern

Yorktown Heights, NY

- Used statistical methods to analyze and explain the behavior of biological (Striatum) neuronal networks
- Used IBM Model Graph Simulator (MGS) to model the Striatum neuronal network
- Developed a Python script for identifying critical transitions within simulated biological neurons to “chaotic” behavior
- Applied data reduction technique to simulated neuronal network data to identify globally chaotic behaviors across the network

Ericsson

May 2018 - August 2018

Digital Representation & Interaction Intern

Santa Clara, CA

- Developed a tool in HTML using Javascript for evaluating spatial audio to allow researchers to efficiently and accurately evaluate and compare different audio renderings
- Developed the tool using ThreeJS to create a three-dimensional (3D) environment in which participants listen to the audio along with a corresponding visual that matches the location of the audio in the 3D environment; and Google Resonance to render the audio
- Conducted and designed a pilot study with users to determine whether non-experts can perceive and effectively evaluate spatial audio using headphones
- Evaluated user perception of how questions were phrased in the pilot study and how the phrasing of the questions affected their ability to localise within spatial audio
- **Link:** <https://www.ericsson.com/research-blog/digital-representation-interaction-ericsson-research/>

Northrop Grumman

May 2017 - August 2017

College Intern Technical

San Diego, CA

- Designed and developed an emulator for a line replacement unit. Application written in C++
- Developed unit tests for the application using Google Test
- Used socket programming for data packets reception and transmission

Shell Oil Company*Imaging & Interpretation Intern*

May 2016 - August 2016

Houston, TX

- Developed and productized a seismic depth estimation program using AGILE software development
- Refactored current algorithm to improve overall functionality
- Developed a graphical user interface for the application using Qt
- Developed unit tests for application

Shell Oil Company*Imaging & Interpretation Intern*

May 2015 - August 2015

Houston, TX

- Developed a C++ stand-alone executable program for seismic depth estimation using AGILE software development

Santee Cooper*Imaging & Interpretation Intern*

May 2014 - August 2014

Moncks Corner, SC

- Studied and analyzed current transmission lines for the building of new transmission infrastructures
- Modeled power system and transmission using MicroStation software

PUBLICATION

D. Prioleau, P. Dames, K. Alikhademi and J. E. Gilbert, "Autonomous Vehicles in Rural Communities: Is It Feasible?," in IEEE Technology and Society Magazine, vol. 40, no. 3, pp. 28-30, Sept. 2021, doi: 10.1109/MTS.2021.3104408.

Prioleau, D., Alikhademi, K., Smarr, S., Roberts, A., Peeples, J., Gilbert, J.E. (2021). Application of Divisive Clustering for Reducing Bias in Imbalanced Data. Machine Learning and Data Mining in Pattern Recognition, MLDM. Accepted.

Alikhademi, K., Drobina, E., **Prioleau, D.** et al. A review of predictive policing from the perspective of fairness. Artif Intell Law (2021).

Stinson, L.A., **Prioleau, D.**, Laurenceau, I. et al. Correspondence between Responses on an Internet Purchase Task and a Laboratory Progressive Ratio Task. Psychol Rec (2021).

Richardson, B., **Prioleau, D.**, Alikhademi, K., Gilbert, J.E., (2020). Public Accountability: Understanding Sentiments towards Artificial Intelligence across Dispositional Identities. In Proceedings of IEEE International Symposium on Technology and Society (ISTAS 2020), pp. 656-663, November 12-15, Tempe, AZ.

Diandra Prioleau, Brianna Richardson, Emma Drobina, Rua Williams, Joshua Martin, and Juan E. Gilbert. 2021. How Students in Computing-Related Majors Distinguish Social Implications of Technology. In Proceedings of the 52nd ACM Technical Symposium on Computer Science Education (SIGCSE '21). Association for Computing Machinery, New York, NY, USA, 1013-1019.

Prioleau, D., Dames, P., Alikhademi, K., Gilbert, J.E., (2020). Barriers to the Adoption of Autonomous Vehicles in Rural Communities. In Proceedings of IEEE International Symposium on Technology and Society (ISTAS 2020), pp. 146-153, November 12-15, Tempe, AZ.

Dunbar, J., **Prioleau, D.**, Gilbert, J.E., (2019), CS Motivation for Black/African American Middle School Student, In Proceedings of the IEEE 2019 Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT), Minneapolis, MN, pp. 55-59.

Williams, A., Posadas, B., **Prioleau, D.**, Laurenceau, I. Gilbert, J.E. (2018) User perceptions of haptic fidgets on mobile devices for attention and task performance, In Proceedings, International Conference

on Applied Human Factors and Ergonomics (AHFE) Advances in Intelligent Systems and Computing, vol. 776, Springer, Cham, pp. 15-22.

HONORS & AWARDS

NSF Scholarship for ACM Richard Tapia Celebration of Diversity in Computing Conference (2019)

CRA-W Grad Cohort for Women Travel Grant (2018)

University of Florida Graduate School Preeminence Award (2017)

McKnight Doctoral Fellowship (2017)

Florida Agricultural & Mechanical University (FAMU) Medallion of Honor for Academics (2017)

Black Engineer of Year Award (BEYA) Leadership Award in Academics (2016)

Receipt of FAMU Distinguished Scholarship (2013, 4-year scholarship)

POSITION OF RESPONSIBILITY

Engineering Graduate School Council

August 2018 - April 2021

CISE Department Voting Representative

- One of the representatives for the Computer & Information Science & Engineering department
- Offered input on certain initiatives within the College of Engineering on behalf of graduate students
- Helped with recruitment efforts of graduate students for College of Engineering

SERVICE

Gainesville Housing Authority

Fall 2018 - Fall 2019

Gainesville, FL

- Volunteered weekly at an after-school program for elementary school students offered through Gainesville Housing Authority at one of the housing communities
- Planned weekly activities for middle school students
- Volunteered as a tutor to help students with homework
- Chaperoned for field trips for the students
- Helped with restructuring the program, in terms of daily activities and discipline, for the Fall 2019 semester

Community Christmas Brunch

December 2018

Pineville, SC

- Planned a Christmas brunch, which was a free event for the community, for those in the St. Stephen/Pineville/Russellville communities in South Carolina
- Solidified funding and sponsorship for the event by writing letters to churches and businesses in the community
- Designed flyers to advertise the event on social media and to post within the community
- Secured a venue for the event
- Budget funding for food, giveaway prizes, and activities
- Secured volunteers for the day of the event

CodeIT Day

Fall 2017/Spring 2018

Gainesville, FL

- Middle school students from the Gainesville area participated in an all day hands-on workshop where they created projects with Nao Robots
- Helped as a classroom teaching assistant; assisted students with their coding projects

Welcome Back Event

August 2016

Tallahassee, FL

- Planned a welcome celebration, which was free for all students at the FAMU-FSU College of Engineering
- Created a budget for the event
- Created itinerary for the day of the event and an alternative plan due to inclement weather
- Delegated tasks to other students for creating flyers, contacting student governments at both universities (FAMU and FSU) for funding, contacting engineering organizations for providing activities at the event
- Helped to create diagrams for setup of event both inside and outside of the building
- Secured a DJ for the event

REFERENCES

Dr. Juan Gilbert, Department Chair of Computer & Information & Science & Engineering
University of Florida
Andrew Banks Family Preeminence Endowed Chair
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Dr. Edward Jones, Department Chair of Computer & Information Sciences
Florida Agricultural & Mechanical University
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