BRIANNA SMITH

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EDUCATION

University of Florida *Gainesville, Florida*
Ph.D. in Computer Science *2018 - 2023*
Research Interests: *Explainability in Machine Learning*
Advisor: Dr. Juan Gilbert

University of Florida *Gainesville, Florida*
M.S in Computer Science *2018 - 2020*

University of Maryland Baltimore County *Baltimore, Maryland*
B.S. Computer Science & B.S. Bioinformatics *2014 - 2018*
Honors: Cum Laude

RESEARCH INTERESTS

Machine Learning, Responsible AI, Robust Statistics, Explainability, Large-Language Models, Generative AI

SKILLS

Programming: Python, R, Matlab, Java, LaTeX, SQL, Bash
Packages: Data Visualization, Predictive Analysis, Clustering & Classification, Data Analytics, Web Scraping, Data Mining, Linear/Logistic Regression, Neural Networks, Parameter optimization
Tools: PyTorch, Tensorflow, Keras
Applications: Git
Operating Systems: Linux, Windows, MacOS

WORK EXPERIENCES

Humana **Louisville, Kentucky (Remote)**
Senior Responsible AI Data Scientist *May 2023 - Present*

- Optimized internal Responsible AI tooling for bias assessment and advised data scientists on best practices for ethical compliance
- Audited third-party vendors to ensure machine learning practices align with Responsible AI standards
- Constructed an assessment protocol for internal Generative AI models
- Served as an advisor for summer intern, supporting student through a summer project and assisting with deliverables

B&D Consulting **Hagerstown, MD**
Block Chain intern *June 2018 - August 2018*

- Contributed to a Hyperledger software for optimizing energy use in households
- Led a mini-project to create a hybrid web application for visitors to login to the office

UMBC Computer Science Department **Baltimore, Maryland**
Computer Science TA *August 2017 - May 2018*

- Led a discussion class, guiding computer science majors through the theoretical computer science, programming through Python, and using a cluster for the first time
- Worked with a team of TAs to create assignments, grade assignments, & lead office hours to assist students through lab, homework, and project assignments

RESEARCH EXPERIENCE

HXR Lab @ University of Florida — *Research Assistant* **Gainesville, Florida**

- **Research projects:** Responsible Machine Learning *August 2018 - Present*
- **Description:** Written several works about the use of Machine Learning across industries, including policing, healthcare, finances, transportation, etc. Developed an expertise in algorithmic bias and fairness mitigation technologies. Utilized NLP to build a conversational AI agent for shopping & built an Android mobile app as a multi-modal interface. Studied the needs of ML practitioners, computer science students, and the general populace to understand user needs and apply them to different ML technologies.
- Advisor: Dr. Juan Gilbert

IBM — *Trustworthy AI intern* **Yorktown Heights, NY (Virtual)**

- **Research project:** Influential Fairness *Summer 2021, 2022*
- **Description:** Utilized novel techniques from robust statistics to create a new methodology for adding a dimension of explainability to black-box models. Tested novel technique on a diverse selection of use cases including datasets and model types.
- Mentors: Dr. Kush Varshney & Dr. Prasanna Sattigeri

Spotify — *Machine Learning & Algorithmic Bias Research intern* **New York, NY (Virtual)**

- **Research project:** Responsible ML for the Practitioner *May 2020 - August 2020*
- **Description:** Collaborated across the company as an algorithmic bias consultant, assisting teams with fairness concerns in their differing applications of machine learning & Exposed several teams and employees to new and emerging fairness AI technologies and methods for addressing algorithmic bias. Conducted a user study measuring the usability and propensity for insight of fairness AI technologies in the workplace & Utilized findings to conduct a complete fairness assessment on a new company-wide machine learning effort.
- Mentors: Dr. Jean Garcia-Gathright & Dr. Henriette Cramer

IMME Lab, UMBC — *Research Assistant* **Baltimore, MD**

- **Research project:** Proteomic profiles for cancerous mice *August 2016 - April 2018*
- **Description:** Uses analytical techniques to normalize and interpret proteomic data from diseased mice with different treatments. Project the techniques with the best results onto multiscale data to identify networks or biological processes influential in diseases and treatments. Utilize a plethora of programs, including Treeview, Matlab, several packages in RStudio, and several statistical algorithms featured as add-ins on major applications
- Mentor: Dr. Gregory Szeto

Institute for Integrative Genomics, Princeton University — *Research Intern* **Princeton, NJ**

- **Research project:** Yeast Phenome *May 2015 - August 2017*
- **Description:** Contributed to the first compilation project involving the Saccharomyces Cerevisiae deletion collection and its use in phenotypic screening. Utilized different programming languages, including Python and Matlab, to import, interpret, and export data in a user-friendly format.
- Mentor: Dr. Anastasia Baryshnikova

Department of Bioinformatics, Boston University — *Research intern* **Boston, MA**

- **Research project:** Characterizing IBS *May 2017 - August 2017*
- **Description:** Created a pipeline to analyze RNASeq data from the microbiota of biopsy samples from patients with several different forms to Irritable Bowel Disease (IBS). Utilize machine learning to differentiate between diseases and identify outlying microbiota for successful pre-symptomatic disease prediction.
- Mentors: Gabriel Birzu, Rajita Menon, Dr. Kirill Korolev

Department of Computer Science — *Research Assistant* **Baltimore, Maryland**

- **Research project:** Characterizing NSCLC *May 2016 - August 2016*
- **Description:** Analyzed RNA-seq data from 21 patients with NSCLC utilizing traditional, univariate expression analysis, such as DiffSplice and CuffDiff, and multivariate, statistical approaches such as, Elastic Net and Random Forest. Utilized several different bioinformatics packages within R, including glmnet, randomforest, and CummeRbund; and also worked with packages in Python, including MISO
- Mentor: Dr. Paul Anderson

PUBLICATIONS

8. [**FAccT'23**] **Richardson, B.**, Sattigeri, P., Wei, D., Ramamurthy, K.N., Varshney, K., Dhurandhar, A., Gilbert, J.E. (2023). Add-Remove-or-Relabel: Practitioner-Friendly Bias Mitigation via Influential Fairness. In Proceedings of the 2023 ACM Conference on Fairness, Accountability, and Transparency, June 12–15, 2023, Chicago, IL, USA. ACM, New York, NY, USA, 17 pages.

7. [**CHI'21**] **Richardson, B.**, Garcia-Gathright, J., Way, S. F., Thom, J., Cramer, H. 2021. Towards Fairness in Practice: A Practitioner-Oriented Rubric for Evaluating Fair ML Toolkits. In CHI Conference on Human Factors in Computing Systems, May 8–13, 2021, Yokohama, Japan. ACM, New York, NY, USA 13 Pages.

6. Roberts A.L., **Richardson B.**, Alikhademi K., Drobina E., & Gilbert J.E. (2021) General Perspectives Toward the Impact of AI on Race and Society. In: Pearson Jr. W., Reddy V. (eds) Social Justice and Education in the 21st Century. Diversity and Inclusion Research. Springer, Cham.

5. [**SIGCSE'21**] Prioleau, D., **Richardson, B.**, Drobina, E., Martin, J., Williams, R., Gilbert, J. E. 2021. How Students in Computing-Related Majors Distinguish Social Implications of Technology. In Proceedings of the 52nd ACM Technical Symposium on Computer Science Education. ACM, New York, NY, USA, 1013–1019.

4. Alikhademi, K., Drobina, E., Prioleau, D.. **Richardson, B.**, Purves, D., Gilbert, J.E. 2021. A review of predictive policing from the perspective of fairness. Artif Intell Law (2021).

3. [**ISTAS'20**] **B. Richardson**, D. Prioleau, K. Alikhademi and J. E. Gilbert. 2020. Public Accountability: Understanding Sentiments towards Artificial Intelligence across Dispositional Identities. 2020 IEEE International Symposium on Technology and Society, pp. 489-496, doi:10.1109/IST AS50296.2020.9462184.

2. [**HCII'19**] Alikhademi, K., **Richardson, B.**, Ross, K., Sung, J., Gilbert, J., Kwon, W.S., Chattaraman, V. (2019). AI- Based Technical Approach for Designing Mobile Decision Aids. In: Stephanidis C. (eds) HCI International 2019 - Posters. Communications in Computer and Information Science, vol 1033, pp. 163–169.

1. [**HFES'19**] Alikhademi, K., **Richardson, B.**, Martins, J., Chattaraman, V., Kwon, W.S., Gilbert, J. (2019). Systematic Evaluation of a Conversational Voice User Interface for Decision-making. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 63, pp 413-416. 10.1177/1071181319631200.

INVITED TALKS

- *Addressing The Design Needs Of Implementing Fairness In AI Via Influence Functions*, at 2021 INFORMS Annual Meeting, Virtual.

PRESENTATIONS

- *Keeping Humans in the Loop Towards Responsible ML*, at ACM's 2022 Richard Tapia Celebration of Diversity in Computing Conference, Washington, D.C.

- *Technological Needs of the Black Collective*, at ACM's 2020 Richard Tapia Celebration of Diversity in Computing Conference, virtual.

- *Exploring Culturally Responsive Game Development*, at the 2018 annual meeting of the International Conference on Urban Education, Nassau, Bahamas.
- *Implementing MODA: A Multi-Strategy, Mobile, Conversational Consumer Decision-Aid System*, at the 2018 annual meeting of the ACM Conference on Computer-Supported Cooperative Work and Social Computing, Jersey City, New Jersey.

ACADEMIC ACHIEVEMENTS AND AWARDS

Generation Next Scholar	*2020 - 2022*
Bridge to Doctorate Fellow	*2018 - 2020*
Marc U*Star Scholar	*2016 - 2018*
Meyerhoff Scholar	*2014 - 2018*

2022 ICML Conference - Black in AI Travel Grant	*2022*
2022 CRA-WP Grad Cohort for Women Travel Grant	*2022*
2022 CRA-WP IDEALS Cohort Travel Grant	*2022*
2021 Grace Hopper Celebration - iAAMCS Scholarship	*2021*
2019 Black in AI Workshop - OHUB Travel Grant	*2019*
2019 Grace Hopper Celebration - Women of Color Scholarship	*2019*
2018 SREB Institute on Teaching & Mentoring Conference - OGDI Travel Grant	*2018*
2018 ACM Richard Tapia Conference - iAAMCS Travel Grant	*2018*
2017 NSBC Conference - iAAMCS Travel Grant	*2017*
2017 COSYNE Conference Travel Grant	*2017*
2016 EE Just Symposium Travel Grant	*2016*

PROFESSIONAL & ACADEMIC SERVICES

- Alpha Epsilon Lambda Honor Society
- National Society of Black Engineers
- Black Graduate Student Organization, E-board Member: Historian

MENTORING EXPERIENCE

- Humana Summer Internship (May 2024 - August 2024)
  - Served as a mentor for an intern, supporting their progress on a summer project focused on Generative AI models and assisted in producing deliverables at the end of their experience
- UMBC Reach Initiative (May 2015 - May 2018)
  - Partnered with a female from an inner-Baltimore high school as a mentor and an advisor, giving advice about being both a minority and a female in the STEM and professional workplace
  - Worked together with mentee on a scientific project about the effects of external stresses on pregnant fish, teaching the scientific method along the way