Micaela V. McCall

DATA SCIENTIST

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TOOLS & SKILLS

Data Science

- Python
- Clojure
- R
- Machine learning
- Statistical modeling
- Feature extraction
- Classification & regression
- Supervised & unsupervised
- Deep learning, neural nets
- Natural language processing
- Predictive analytics
- Data visualization
- ETL
- MLFlow
- MongoDB
- Azure ML
- PostgreSQL
- Git & Github

Software Engineering

- Agile software development
- Test-driven development
- Refactoring
- Pair programming/mobbing
- Azure DevOps
- Kubernetes
- Docker
- AWS/Azure
- Jira
- Elasticsearch

EDUCATION

Emory University, *BS in Neuroscience and Behavioral Biology, BA in Religion* ***2014-2018***
Atlanta, GA

- **Honors**: Highest Honors in Neuroscience Research, Phi Beta Kappa, Nu Rho Psi (National Neuroscience Honor Society), Theta Alpha Kappa (National Religious Studies Honor Society).

EXPERIENCE

Data Scientist ***03-2020 - Present***
ATA, LLC, The Full Stack Data Science Company

- Implemented the following analytical projects in Python:
  - Data-driven geospatial risk-analysis algorithm using Bayesian statistics
  - Suite of machine learning and statistical anomaly detection algorithms for use in streaming data systems
  - Ensemble of deep learning and classical machine learning for regression problems in logistics
  - Natural Language Processing and use of ontologies for text navigation
- Served as both a tech lead and team member in the design and implementation of full-stack data-intensive applications (in Clojure) to put the above data science solutions into production.
- Applied machine learning operations (MLOps) to production systems, including the development, testing, deployment, and management of model services.
- Developed RESTful APIs in Clojure for complex data integration, processing data from public and licenced datasets, storing in relational and document-oriented databases, and preparing for use by company user interfaces.
- Communicated analytical methods and results to technical and non-technical clients and stakeholders.

Research Fellow ***05-2018 - 03-2020***
National Institutes of Health, National Center for Complementary and Integrative Health *Bethesda, MD*

- Built pipelines in R and Python for analysis of behavioral and physiological data (fMRI, autonomic).
- Managed Electronic Health Records and clinical data.
- Facilitated patient visits and consulted with patients on study procedures.
- Designed data visualizations and prepared manuscripts for publication in peer reviewed journals.
- Collaborated with a diverse research team; prepared written and verbal reports for multidisciplinary audiences.

Undergraduate Neuroscience Research Honors Candidate ***06-2017 - 05-2018***
Emory University School of Medicine, Dept. of Psychiatry *Atlanta, GA*

- Earned Highest Honors in research.
- Developed projects to collect and statistically examine physiological and quantitative behavioral data using R.
- Presented results to a diverse, technical and non-technical thesis committee.

Research Assistant ***07-2016***
Mauritian Laboratory for Experimental Anthropology *La Gaulette, Mauritius*
- Implemented ethnographical research methods (conducted interviews with local Mauritians, collected saliva samples during local sword-climbing rituals).
- Designed a research project to explore religious syncretism.

Undergraduate Research Assistant ***08-2015 - 05-2017***
Yerkes National Primate Research Center *Atlanta, GA*
- Collected observational social behavior of infant Rhesus macaques.
- Examined macaque eye-tracking data to assess the effect of oxytocin dosing on on social gaze preference.

PROJECTS more at micaelamccall.com

Finding Topic Clusters in Tech News (GitHub) ***01-2020***
NIH Foundation for Advances Education in the Sciences, Bioinformatics and Data Science *Bethesda, MD*
- Web-scraped 1,500 tech news articles and trained a KMeans unsupervised algorithm to cluster articles based on content.

Exploring Patient Satisfaction and Readmission in Medically Underserved Areas (GitHub) ***09-2019***
NIH Foundation for Advances Education in the Sciences, Bioinformatics and Data Science *Bethesda, MD*
- Munged data from multiple API queries, totalling over 2400 rows, and visualized factor relationships using Python.

Using Supervised Learning to Classify Drug Consumption Behavior (GitHub) ***11-2018***
NIH Foundation for Advances Education in the Sciences, Bioinformatics and Data Science *Bethesda, MD*
- Trained Logistic Regression, random forest, and SVC models on survey data to predict drug use using Python.

PUBLICATIONS

Case, L. K., Liljencrantz, J., **McCall, M. V.**, Bradson, M., Necaise, A., Tubbs, J., ... & Bushnell, M. C. "Pleasant deep pressure: expanding the social touch hypothesis." *Neuroscience* 464 (2021): 3-11.
- Processed and statistically analyzed fMRI data using Python and FSL; prepared visualizations for manuscript.

McCall, M. V., Riva-Posse, P., Garlow, S. J., Mayberg, H. S., & Crowell, A. L. “Analyzing non-verbal behavior throughout recovery in a sample of depressed patients receiving deep brain stimulation”. *Neurology, Psychiatry and Brain Research*, 37 (2020): 33-40.
- Designed project, collected, and analyzed behavioral data in R using Factor Analysis, Analysis of Variance, and Regression.

Case, L. K., Liljencrantz, J., Madian, N., Necaise, A., Tubbs, J., **McCall, M.**, ... & Chesler, A. T. "Innocuous pressure sensation requires A-type afferents but not functional PIEZO2 channels in humans." *Nature communications* 12.1 (2021): 1-10.

PRESENTATIONS

Laura K. Case PhD, **Micaela V. McCall,** Megan Bradson, M. Catherine Bushnell PhD. Effect of Naloxone on Touch Intensity and Pleasantness. Poster presented at American Pain Society Scientific Meeting. ***04-2019*** *Milwaukee, WI*

Micaela McCall, Andrea Crowell MD, Lydia Denison BS, Patricio Riva Posse MD, Helen Mayberg MD. Non-verbal Behavior in Depression Patients Receiving Deep Brain Stimulation. Poster presented at Emory University Neuroscience and Behavioral Biology Undergraduate Research Symposium. ***04-2018*** *Atlanta, GA*

Micaela McCall, Andrea Crowell MD, Helen Mayberg MD. Acute and Chronic Deep Brain Stimulation Effect on Heart Rate Variability. Poster presented at Emory University Summer Undergraduate Research Symposium. ***07-2017*** *Atlanta, GA*

Micaela McCall, J. M. Brooks, T. J. Jonesteller, S. Moss, T. R. Heitz, L. A. Parr, PhD. The effect of chronic oxytocin on the gaze preferences of infant macaques. Poster presented at Emory University Fall Undergraduate Research Symposium. ***08-2016*** *Atlanta, GA*

TRAININGS & WORKSHOPS

Machine Learning in Python at FAES Bioinformatics and Data Science, Bethesda, MD ***08-12, 2019***
NVIDIA GPU Technology Conference, Washington DC ***11-2019***
Artificial Intelligence in Healthcare: From Prevention & Diagnostics to Treatments, Bethesda, MD ***10-2019***
IBM Hands-on Introduction to Machine Learning / Deep Learning Workshop, Bethesda, MD ***11-2019***
Maryland Neuroimaging Retreat, Baltimore, MD ***04-2019***
Discovery and Validation of Biomarkers to Develop Non-Addictive Therapeutics for Pain, Bethesda, MD ***11-2018***

OTHER INTERESTS

Buddhism I am involved in the DC insight meditation community and I served as the President of the Emory Buddhist Club, hosting weekly meditations led by ordained Buddhist teachers of various traditions. I studied abroad in India, living in the Tibetan Buddhist community in exile. There, I completed a research project on resiliency in the Tibetan community in exile, including primary source research and interviews.

Activism I am passionate about involvement in LGBTQ and intersectional feminist causes. I served as Conversations Chair of the Emory Feminists in Action club, designing and promoting weekly discussions on various feminist and intersectional topics, and initiating dialogues with other direct-action-focused clubs on campus.

Mentorship In my current position, I mentor summer interns and college students. In college, I served as a Peer Mentor in the Emory College Undergraduate Research Partners Programs, meeting one-on-one with Freshman research “partners” and designing professional development and ethics trainings with graduate mentors.