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
- Natural language processing
- Predictive analytics
- Data visualization
- Amazon Sagemaker & Quicksight
- MLOps
- 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
- ETL

EDUCATION

Georgia Institute of Technology, *MS in Analytics, Computational Data Analytics Track* ***2023-Present***

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 ***07-2022 - 12-2022***

OneStudyTeam, a member of the Reify Health family

- Developed analytics and reporting related to site use and engagement on the OneStudyTeam platform.
- Built and maintained Python and dbt (SQL) data analysis pipelines for self-service dashboards, reducing the number of ad hoc data requests from internal stakeholders.
- Implemented analytical projects such as statistical KPI assessment and anomaly detection using time series methods.
- Worked with healthcare data in compliance with the data accountability standards of HIPAA and GDPR.
- Collaborated with internal customer, product, sales, and marketing teams.

Data Scientist ***03-2020 - 06-2022***

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 Advanced 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 Advanced 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 Advanced 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.

Case, L., **McCall, M.**, Bradson, M., Necaise, A., Tubbs, J., Liljencrantz, J., ... & Bushnell, M."Effect of Naloxone on Touch Intensity and Pleasantness." *The Journal of Pain 20.4* (2019): S63-S64.

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

Algorithmic Toolbox, UC San Diego Coursera ***Summer 2021***
Introduction to Computer Science, HarvardX ***Fall 2020***
Probability - The Science of Uncertainty and Data, MITx ***Fall 2020***
Linear Algebra, Northern Virginia Community College ***Summer 2020***
Elementary Calculus II, Foundation for Advanced Education in the Sciences ***Spring 2020***
Applied Machine Learning, Foundation for Advanced Education in the Sciences ***Fall 2019***
Introduction to Python, Foundation for Advanced Education in the Sciences ***Fall 2018***
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 ***09-019***
NIH AFNI Bootcamp, Bethesda, MD ***03-2019***
Maryland Neuroimaging Retreat, Baltimore, MD ***04-2019***
Discovery and Validation of Biomarkers to Develop Non-Addictive Therapeutics for Pain, Bethesda, MD ***11-2018***
Introduction to MATLAB Fundamentals for Biomedical Scientists, Bethesda, MD ***07-2018***