Dr. Sarah Mitchell

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PROFESSIONAL SUMMARY

Senior Data Scientist with 8+ years developing machine learning solutions for healthcare and biotech. Expert in predictive modeling, deep learning, and clinical data analysis. Led teams delivering FDA-validated algorithms that improved diagnostic accuracy by 35% and reduced false positives by 42%. Strong track record translating complex research into production systems serving 10M+ patients.

SKILLS

Machine Learning: PyTorch, TensorFlow, Scikit-learn, XGBoost, Deep Learning, NLP, Computer Vision

Data Engineering: Python, SQL, Spark, Airflow, Docker, Kubernetes, AWS

Clinical/Bio: Clinical Trial Design, Biostatistics, HIPAA Compliance, FDA Validation, Electronic Health Records

Tools & Platforms: Git, Jupyter, MLflow, Databricks, Tableau, Power BI

PROFESSIONAL EXPERIENCE

Senior Data Scientist
BioTech Innovations Inc.
Cambridge, MA | Jan 2021 - Present

- Developed deep learning model for early cancer detection from medical imaging, achieving 94% sensitivity and 89% specificity on 500K patient dataset
- Built end-to-end MLOps pipeline using Kubernetes and MLflow, reducing model deployment time from 2 weeks to 3 days
- Led cross-functional team of 6 engineers and clinicians to deliver FDA 510(k) cleared diagnostic algorithm
- Implemented automated data quality monitoring system that reduced data errors by 67% and saved $1.2M annually
- Mentored 4 junior data scientists and established team-wide best practices for reproducible research

Data Scientist
HealthTech Solutions
Boston, MA | Jun 2018 - Dec 2020

- Created predictive models for patient readmission risk using ensemble methods, reducing 30-day readmissions by 23%
- Designed and implemented real-time anomaly detection system for ICU monitoring, processing 1M+ data points per minute
- Developed NLP pipeline to extract insights from 2M clinical notes, improving diagnosis coding accuracy by 45%
- Collaborated with product team to integrate ML models into clinical decision support tools used by 500+ physicians

Research Data Analyst
Medical Research Institute
Boston, MA | Aug 2016 - May 2018

- Analyzed genomic and clinical data for precision medicine study with 10,000 participants
- Built statistical models identifying novel biomarkers associated with treatment response ($p<0.001$)
- Automated data processing workflows using Python and R, reducing analysis time by 60%
- Co-authored 3 peer-reviewed publications in high-impact journals (Nature Medicine, JAMA)

EDUCATION

Ph.D. in Computational Biology
MIT, Cambridge, MA
Graduated: May 2016
Thesis: Machine Learning Methods for Multi-Modal Clinical Data Integration

B.S. in Computer Science
Stanford University, Stanford, CA
Graduated: May 2012
GPA: 3.9/4.0
Honors: Magna Cum Laude, Phi Beta Kappa

SELECTED PROJECTS

COVID-19 Risk Prediction Model - github.com/smitchell/covid-risk-model

Open-source model predicting severe COVID-19 outcomes using clinical and demographic data

Impact: Deployed in 15 hospitals, helped prioritize care for 50,000+ patients during surge periods

Technologies: Python, XGBoost, FastAPI, Docker

Medical Image Segmentation Library - github.com/smitchell/medseg

PyTorch-based library for automated segmentation of medical images with state-of-the-art architectures

Impact: 1,200+ GitHub stars, adopted by 3 major research institutions

Technologies: PyTorch, OpenCV, MONAI, CUDA

PUBLICATIONS

- Mitchell S, et al. 'Deep Learning for Automated Detection of Diabetic Retinopathy.' Nature Medicine, 2020.
- Mitchell S, et al. 'Multi-Modal Data Integration for Precision Oncology.' JAMA Network Open, 2019.
- Mitchell S, et al. 'Federated Learning in Healthcare: A Systematic Review.' Journal of Biomedical Informatics, 2021.

CERTIFICATIONS

- AWS Certified Machine Learning - Specialty
- Google Cloud Professional Data Engineer
- HIPAA Compliance Certification

LEADERSHIP & COMMUNITY

- Technical Lead - ML Community of Practice (2021-Present)
- Mentor - Women in Data Science Program (2019-Present)
- Conference Speaker - NeurIPS, ICML, AMIA (2018-2023)