

Blake Martin

8331 Brewster Ln. • Canton, Michigan 48187 • (248) 345-0634 • btmartin@umich.edu

EDUCATION

University of Michigan | Ann Arbor, MI | 4.00/4.00 GPA **Expected Graduation: May 2021**

B.S.E. in Data Science with Mathematics Minor

Coursework:

- Machine Learning (EECS 445)
 - Deep Learning for Computer Vision (EECS 498)
 - Data Structures and Algorithms (EECS 281)
 - Conversational AI (EECS 498)
 - Linear Regression (STATS 413)
 - Numerical Methods (MATH 471)
-

RESEARCH EXPERIENCE

Computational Physics Group Research (University of Michigan) **October 2018 – Present**

- Developed 3D Convolutional Neural Networks that predict effective diffusivity of microstructures in batteries given volumetric image representations
- Implemented gradient descent and physics-based L-BFGS-B optimization to analyze MRI scans and model mechanics that govern brain folding in development
- Integrated Open MPI for parallel computation on high performance computing clusters

CytogeneticsAI Research (Beaumont Health System – Royal Oak) **April 2019 – Present**

- Produced an abstract accepted for the College of American Pathologists 2020 Annual Meeting and featured in Archives of Pathology & Laboratory Medicine
 - Created a Convolutional Neural Network model that can predict between eight classes of normal and abnormal chromosomes associated with myeloid leukemia at 94% accuracy
 - Implemented k-means clustering to extract individual chromosome pairs from karyotype images
-

WORK EXPERIENCE

ML Instructional Aide (EECS 445) | University of Michigan **September 2020 - Present**

- Lead discussions, design assignments, and provide help in office hours regarding ML concepts
- Provide solutions to new accessibility challenges posed by the virtual semester
- Instruct on topics including SVMs, neural networks, decision trees, boosting, and clustering

ML Algorithms Intern | KLA **June 2020 – August 2020**

- Performed self-supervised representation learning with autoencoders and simCLR in TensorFlow
- Developed algorithms that produce encodings of large images 3x faster than with previously used methods in transfer learning tasks while maintaining downstream predictive power

Advanced Engineering Intern | Gentherm **May 2019 – August 2019**

- Extracted accurate predictions of occupant weight, height, gender, and clothing insulation from their car seat pressure distribution using scikit-learn while reducing sensor area required by 98%
 - Visualized statistics and time dependencies of participant sensation, thermal comfort, and reported uncomfortable body parts from test drive data with Python's Pandas and Matplotlib libraries
-

SKILLS

Programming Languages: Python, C++, R, SQL, MATLAB

Machine Learning Libraries: TensorFlow, PyTorch, scikit-learn, OpenCV

Data Mining and Visualization Libraries: NumPy, Pandas, Matplotlib

Technical Proficiencies: VS Code, WSL, Git, Jupyter Notebooks, Azure DevOps