JEFFREY BOSCHMAN

[Website](#) | [LinkedIn](#) | jeffreyboschman@gmail.com | [GitHub](#)

CAREER PROFILE

Machine Learning Engineer with **2.5+ years' experience** developing **computer vision** feature engineering strategies and **deep learning pipelines** for **medical image** analysis. First-authored two publications for high-impact journals demonstrating the efficacy of artificial intelligence (AI)-based diagnostic aides for pathologists.

Core competencies include: Python, PyTorch, Keras, NumPy, Pandas, Matplotlib, torchvision, SciPy, scikit-learn, Pydicom, git, BASH, LaTeX, R, MATLAB, SQL, Vim, Linux/Unix, Docker/Singularity, Slurm, OpenSlide, QuPath

PROFESSIONAL EXPERIENCE

THE ARTIFICIAL INTELLIGENCE IN MEDICINE LAB, Vancouver, Canada   May 2020 – Present
Specializes in combing omics and imaging data to discover novel biomarkers for treatment selection in cancer

Graduate Research Assistant – Machine Learning Engineer

- **First-authored two research articles** about increasing the **generalizable** diagnostic performance of deep learning models on histopathology whole slide images, specifically focussing on the histotypes of ovarian cancer
- Designed **novel color normalization augmentation algorithm** for consistent (across multiple datasets, cancer types, and cross-validation splits) classification improvement on out-of-distribution pathology datasets
- Processed terabytes of **medical images**, implemented 8 color normalization algorithms (**Python** or MATLAB), **optimized state-of-the-art machine learning architectures**, and performed **statistical analyses**
- Developed and maintained medical image processing codebase and machine learning pipeline (**Python**, **PyTorch**, **Singularity/Docker**) on a remote Linux server with a team of 8
- Placed top-5 at university research showcase for video communicating technical project to non-specialist audience
- Led weekly literature review and book club; organized virtual and in-person lab events for team building

EDUCATION

UNIVERSITY OF BRITISH COLUMBIA, Vancouver, Canada   May 2020 – April 2022
  Master of Applied Science, Biomedical Engineering

UNIVERSITY OF BRITISH COLUMBIA, Vancouver, Canada   Sept 2012 – April 2017
  Bachelor of Applied Science, Chemical and Biological Engineering

PUBLICATIONS

Boschman, J, Farahani, H, et al. "The Utility of Color Normalization for AI-Based Diagnosis of Hematoxylin and Eosin-Stained Pathology Images." The Journal of Pathology, Sept. 2021, doi:10.1002/PATH.5797.

Boschman, J, Farahani, H, et al. "Deep Learning-Based Histotype Diagnosis of Ovarian Carcinoma Whole-Slide Pathology Images." Modern Pathology, Accepted pending minor revisions.

PROJECTS

KAGGLE.COM   Sept – Oct 2020
Machine learning and data science competition community

- Developed full data cleaning and machine learning pipeline for binary classification of DICOM brain MRI scans
- Programmed functions for normalizing, resampling (sagittal/coronal to axial), isolating, and visualizing 3D MRIs

ONE MINUTE MACHINE LEARNING, MEDIUM.COM   Sept 2019 – Present
Online publishing platform

- Wrote articles summarizing important machine learning papers and topics in simple terms for beginners
- Authored articles on: Inception, VGG, ResNet, multi-instance learning, domain adaptation, recurrent neural networks, regularization (L1, L2, dropout, batch normalization), Transformers, attention, BERT, etc