Bohan Wang

Curriculum Vitae

+86-13360028052
wbh@bu.com
laowangbushilaowang
Languages: English, Mandarin, Cantonese

Education

Feb 2025 **Master of Science in Data Science**, *Boston University*, USA
cGPA: 3.5/4.0

Jun 2023 **BSc (Hons) in Data Science**, *Hong Kong Baptist University (Zhuhai)*, China
Major GPA: 3.6/4.0

Relevant Coursework

Mathematics & Statistics: Calculus, Linear Algebra, Regression Analysis, Stochastic Processes, Statistical Computing, Optimisation Methods

Computer Science & Algorithms: Structured Programming, Data Structures and Algorithms, Design and Analysis of Algorithms, Database Systems

Machine Learning & AI: Machine Learning, Artificial Intelligence, Data Mining, Deep Learning

Specialized Topics: Cloud Computing, Computer and Network Security, Cybersecurity, Crypto for Data Science, Data Visualization

Research Interests

Computational Biology & AI: single-cell transcriptomics, spatial transcriptomics, trajectory inference

Machine Learning & Neural Fields: spatiotemporal modeling, implicit neural representations

Cross-disciplinary AI: biomedical image analysis, data-driven healthcare

AI & Robotics: computer vision, autonomous systems, medical robotics

Research Experience

2025–Present **AI Algorithm Engineer (Research)**, *Guangzhou Laboratory*, China
PI: Chichau Miao

- Conduct interdisciplinary research at the intersection of AI and computational biology.
- **Project 1: Spatiotemporal Modeling of Spatial Transcriptomics**
  Designed methods to reconstruct continuous 3D+time biological structures, enabling developmental dynamics analysis.
- **Project 2: Single-cell RNA-seq Variability Decomposition**
  Developed correlation-based and low-rank decomposition methods to separate cell-fate variability (G) from sample-time variability (g).
- **Project 3: AI Agent-driven Single-cell Dataset Collection and Standardization**
  Designed and deployed an end-to-end automation pipeline: keyword search → literature screening → data download → format conversion → metadata standardization → H5AD generation.

2024 **Master's Thesis**, *Boston University*, USA

Image Reconstruction Through Multiple 1D Approximations
Discovered a greedy + dimensionality reduction algorithm for image reconstruction. Improved fine-grained detail preservation compared to standard methods.
Paper available: `https://open.bu.edu/items/d800558c-a02f-4356-86ea-86290eb0d72a`

2023 **Bachelor's Thesis**, *UIC*, China
Multi-stage Image Restoration with Neural Networks
Developed EMRNet on top of MPRNet using ACA, SAB, and SCAM modules; improved denoising, deblurring, and deraining performance.

2022–2023 **AI Algorithm Engineer (Research)**, *Guangzhou Bona Robotics Co., Ltd.*, China
- Improved YOLOv7-based robot vision detection accuracy by 5%.
- Used attention modules, activation redesign, and Focal Loss reweighting.
- Trained models on Huawei Ascend chips (MindSpore), reaching the Huawei Ascend AI Innovation Competition Final.

Academic Projects

2025 **CUHK Medical Robotics Lab** – Image recognition module for robot-assisted medical diagnosis.

2024 **Data Days for Good (BU)** – Built R Shiny dashboard and NLP pipeline to analyze survey data.

2023 **Geospatial Fairness in Public Transit** – Analyzed U.S. Census data to quantify racial commute disparities.

2022 **NLP for Mental Health** – GPT-3–based chatbot with emotion-aware responses.

2021 **Lung X-ray AI Analysis** – CNN/ResNet pneumonia classifier achieving 95% accuracy.

2021 **Sneaker Trading Platform** – Full-stack Django site with MySQL and automated scraping.

2021 **Books Search System** – Hadoop–Spark–Django pipeline for large-scale keyword retrieval.

Technical Skills

Programming: Python, R, SQL, C, Java

Machine Learning: PyTorch, TensorFlow, CNNs, YOLOv7, Neural Fields

Computational Biology: Scanpy, Seurat, Spatial Transcriptomics, Trajectory Inference

Data Processing: Pandas, NumPy, SciPy, AnnData

Tools: Git, Linux, Docker, Jupyter, Hadoop/Spark

Awards & Honors

2022 Honorable Mention, Mathematical Contest in Modeling (MCM)

2021, 2022, 2024 University Second-Class Scholarship (BNBU, BU)