KATIE HUANG

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Education

University of Massachusetts Lowell – Lowell, MA **Dec. 2024**

Master of Science in Biomedical Engineering and Biotechnology

Cumulative GPA: 4.00/4.00

Awards: 2024 Student Research and Community Engagement Symposium Winner

Poster Presentations: RECOMB 2024, ISMB 2024 *(Overview of project)*

Relevant Coursework: Data Science for Biologists, Probability & Math Stats, Genomics, Cancer Genomics, ML and AI in Living Organisms

University of Massachusetts Lowell – Lowell, MA **Dec. 2023**

Bachelor of Science in Biomedical Engineering

Cumulative GPA: 3.92/4.00

Chancellor's List: Fall 2023; *Dean's List:* Fall 2020, Spring 2021, Fall 2021, Spring 2022, & Fall 2022

Clubs and Activities: Co-president of UML Badminton Club (2023), STAARS mentor, member of UML Table Tennis Club

Technical Skills

Programming Languages: Python, command line (bash, terminal)

Machine Learning & Data Science: scikit-learn, statsmodels, scipy, pandas, numpy, deep learning (CNNs, neural networks)

Data Analysis & Visualization: matplotlib, seaborn, plotly

Development Tools: Git, GitHub, conda, Streamlit, JupyterLab

Professional Experience

Adjunct Faculty, Data Scientists for Biologists with Lab **Nov. 2024 – Dec. 2024**

Department of Biological Sciences, University of Massachusetts Lowell – Lowell, MA

- Taught Python programming, command line, and statistical modeling to biology students, bridging computational skills with biological research
- Empowered students to apply linear models (e.g., correlation coefficient, r-squared) to real-world problems using statsmodels
- Fostered critical thinking and collaboration through group projects, peer review, and hands-on coding exercises
- Delivered prompt, detailed feedback to support individual learning and enhance technical understanding

Graduate Biomedical Data Science Researcher **Sept. 2023 – Dec. 2024**

Computational Disease Biology Lab, University of Massachusetts Lowell – Lowell, MA

- Developed an ensemble logistic regression model predicting new therapeutic uses for existing drugs, achieving an AUC of 0.708 in clinical trial outcome prediction
- Presented findings in biweekly lab meetings, using visualizations and simplified explanations to communicate insights effectively across disciplines
- Mentored a junior researcher, guiding her through project development and enabling her to independently build her own interactive data dashboard

Data Science Projects

Accelerating Targeted Drug Discovery Against Antibiotic Resistance Using CNNs

- Developed a CNN-based predictive model for identifying effective drug candidates against antibiotic resistance, achieving 98% precision, accuracy, recall, and 100% AUC on the testing dataset
- Converted canonical SMILES into 2D images, allowing automated feature extraction and reducing dataset preparation time
- Demonstrated AI's potential in antibiotic resistance research, providing a scalable solution to accelerate drug discovery

Exploring the Genetic Effects of Wnt Pathway on Pancreatic Adenocarcinoma

- Analyzed TCGA genomic data to examine Wnt pathway's role in pancreatic cancer
- Discovered recurring mutation patterns and potential tumor-suppressing activity
- Identified key targets for further biological investigation, providing insights for future research