Bao Khanh Ha (Khanh)

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EDUCATION

University of Washington — **Seattle, WA**
Master of Science in Chemical Engineering with Data Science — *Expected June 2025*
- **Relevant courseworks:** Data Science Methods; Software Engineering for Molecular Science and Engineering; Data Visualization.

University of South Florida — **Tampa, FL**
Bachelor of Science in Chemical Engineering — *May 2023*
GPA: 3.61/4.0 *[Honor: Cum Laude]*

RESEARCH EXPERIENCE

University of Washington — **Seattle, WA**
Graduate Student - Advisor: Prof. Shachi Mittal — *January 2024 - Present*
Advanced Imaging Analytics for Breast Cancer Staging
- Conducting advanced imaging analytics research focused on breast cancer staging diagnosis.
- Implementing K-Means and TensorFlow clustering algorithms to differentiate between different components of breast tissue images.
- Maintaining codebase for imaging analysis algorithms and ensured version control using Git.
- Deployed algorithms on Microsoft Azure cloud infrastructure for scalability and accessibility.
- Supervising machine learning pipeline by preprocessing images and executing tests, ensuring smooth operation through the process.

University of South Florida — **Tampa, FL**
Undergraduate Research Assistant - Advisor: Prof. Lawrence A. Stern — *June 2022 - May 2023*
Suppression of Dimerization of Colony-Stimulating Factor 1 (CSF-1) & Binding Affinity with Receptors
- Demonstrated protein engineered by mutating CSF-1 gene to suppress the proliferation of cancer cells, and successfully isolating desired yeast colony proposing the desired phenotype up to 80%.
- Performed titration by varying the receptors concentration to obtain the binding affinity.
- Acquired proficiency in various laboratory protocols, including plasmid preparation, polymerase chain reaction, DNA gel electrophoresis, yeast electroporation transformation, flow cytometry, and lab safety & maintenance.

SKILLS

Programming Languages: Python, MATLAB, HTML, CSS.
Data Analysis & Visualization: Matplotlib, OpenCV, Tensorflow, Machine Learning, Deep Learning, Data Visualization
Software & Tools: Git, Linux, Jupyter Notebook, Microsoft Office, Microsoft Azure, Aspen Plus

PROJECTS

Data Science Capstone — **Seattle, WA**
Brain Waves - Comatose Patients Prognosis Software with Electroencephalogram (EEG) Stimulus — *March 2024 - Present*
- Developed a software application to deliver EEG stimuli to comatose patients, facilitating prognosis prediction through machine learning algorithms.
- Designing a user-friendly interface with Streamlit, ensuring accessibility for medical professionals.
- Conducting preprocessing of EEG data collected from patients, employing techniques to improve data quality and enhance the performance of machine learning models.

Class Project - Software Engineering — **Seattle, WA**
Multiple Particle Tracking Statistical Testing — *January 2024 - March 2024*
- Developed a software package to visually and statistically detect potential sources of error in Multiple Particle Tracking data & improving machine learning predictions of disease onset and severity.
- Led the performance of data visualization to identify trends and anomalies in particle tracking data.

Class Project - Data Science Methods — **Seattle, WA**
Material Classification for Clean Energy Applications — *December 2023*
- Classified materials for further applications for clean energy, based on its molecular properties using Machine Learning (ML) in Python.
- Performed ML & hyperparameter tuning with different classifier methods including Random Forest, K Neighbors, XGBoost, and TensorFlow, able to achieve up to 98% testing and training accuracy.

Senior Capstone Project — **Tampa, FL**
Encapsulation of Triple Combination Drug for Rheumatoid Arthritis & Type 2 Diabetes — *January 2023 - May 2023*
- Designed a combination drug of ibuprofen, metformin, and famotidine in treating Rheumatoid Arthritis & Type 2 Diabetes while minimizing acid reflux side effects.
- Modeled encapsulation process in fluidized bed of metformin & drug release behavior using MATLAB.
- Achieved a benefit-cost ratio of 1.4 for the designed drug product.
- Won “2023 Outstanding Capstone Product Design Project” Award.

WORK EXPERIENCE

USF Academic Success Center — **Tampa, FL**
Student Tutor — *June 2022 - May 2023*
- Served as a learning assistant for Math-related courses, providing high-quality academic support to over 100 students weekly.
- Effectively utilized tutoring strategies to enhance students' learning outcomes, resulting in a notable improvement from a C to a B.
- Developed professional skills in problem-solving, collaboration, oral and written communication, leadership, and digital technology.

LEADERSHIP EXPERIENCE

USF Engineering EXPO 2023 — **Tampa, FL**
Director of Logistics — *August 2022 - February 2023*
- Collaborated with a team to organize an engaging educational event that aimed to inspire over 400 K-12 students in STEM, encouraging young learners to pursue careers in science and technology.
- Demonstrated excellent organizational & collaboration skills, by handling various logistical aspects of the event.