JOHN LEE

Fremont, CA 94539 | (510) 509-8266 | jlee88@nd.edu
https://github.com/JohnDLee | https://www.linkedin.com/in/johndaniellee

Education

B.S. in Computer Science / Applied Math and Statistics Expected in May 2024
University of Notre Dame Notre Dame, IN

- **GPA**: 4.00/4.00, Dean's List - All Semesters, Stinson Scholarship Recipient, Tau Beta Pi
- Relevant Coursework: Stochastic Modeling, Time Series, Machine Learning, Neural Networks, NLP, Stochastic Simulation Algorithms, Financial Math (IP), Math in Financial Economics (IP)
- **CSE Teaching Assistant** (January 2022 – Present); **ACES Eng. Tutor** (September 2022 – Present)

Work History

Computational Biomechanics Undergraduate Researcher May 2022 - Present
Cardiovascular Biomechanics Computation Lab - Stanford University Stanford, CA

- Prototyped a probabilistic surgical guidance pipeline for NIH grant 1R01HL167516-01A1
- Created, optimized, and solved fluid dynamics models using SimVascular and HPC clusters.
- Introduced a novel linear correction method that optimizes 0D to 3D models with less than 5% error, addressing a well-established problem of modeling pressure drops in vessel junctions.
- Trained a neural network simulating hemodynamic results within 1/20th of a catheter's error.
- **Patent: Lee, J.D.**, Schiavazzi, D.E., Marsden, A.L., 2023. Surgical Planning Tool for Vascular Disease. U.S. Provisional Patent 63/604,856. Filed Nov 30, 2023. *Pending*.

Prompt Engineering Undergraduate Researcher May 2023 – Aug 2023
Dept. of Computer Science and Engineering – University of Notre Dame Notre Dame, IN

- Combined GPT-4 and prompt engineering methods for chemical reaction prediction tasks.
- Achieved 60% product prediction accuracy and reduced model hallucinations to nearly 0%

Uncertainty Quantification Undergraduate Researcher Jun 2021 - May 2022
Dept. Of ACMS - University of Notre Dame Notre Dame, IN

- Developed a multi-fidelity U-Net model for retinal vessel segmentation, quantifying the effects of low-fidelity image data on prediction capability in 12 varying fidelity compositions.
- Presented a poster at COS-JAM, University of Notre Dame in May 2022.

Publications / Projects

1. **Lee, J.D.**, Richter, J., Pfaller, M.R., Zanoni, A., Feinstein J.A., Kreutzer, J., Marsden, A.L., Schiavazzi, D.E. (2023). *A Probabilistic Neural Surgical Twin for Peripheral Pulmonary Artery Stenosis.* International Journal for Numerical Methods in Biomedical Engineering. Under First Revision.

Other Relevant Projects – StockNet, Markov Stock Sim, CEV Simulation, 2048RL, BMinor Compiler,

Skills/Interests

- Python - 6 years, C – 3.5+ years, Knowledge in C++, JavaScript, HTML, Java, R, x86
- PyTorch, Neural Networks, Machine Learning
- Probability, Stock Markets, Options