JOHN LEE

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Education

Bachelor of Science: **Computer Science / Applied Math and Statistics** Expected in Jan 2024
University of Notre Dame Notre Dame, IN

- **GPA**: 4.00/4.00, Dean's List - All Semesters, Stinson Scholarship Recipient
- Relevant Coursework: Stochastic Modeling, Time Series, Machine Learning, Neural Networks, NLP (IP), Stochastic Simulation Algorithms (IP), Intro to Operations Research (IP), Partial D.E. (IP)
- Clubs: Quant, Investment, Student International Business Counsel, Corporate Finance
- Intentions to pursue graduate study (Ph.D. or Masters)

Work History

Prompt Engineering Research Intern May 2023 - Present
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%

Computational Biomechanics Research Intern May 2022 - Present
Cardiovascular Biomechanics Computation Lab - Stanford University Stanford, CA

- Prototyped a probabilistic surgical guidance pipeline serving as foundational research for NIH grant 1R01HL167516-01A1 with a paper in works and intentions to file a patent.
- Created, optimized, and solved 3D pulmonary 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.
- Implemented OOP interface code to work with SimVascular 0D LPN and Solver components.

Uncertainty Quantification Research Intern 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.

Projects

StockNet – a crash-robust distributed system simulating a simplified stock market game.
Markov Stock Sim – built Markov models to simulate stocks and implement a trading strategy.
Other Relevant Projects – 2048RL, BMinor Compiler, Gender Prediction

Skills/Interests

- Python - 5.5+ years, C - 3+ years, Knowledge in C++, JavaScript, HTML, Java, Clojure, x86
- PyTorch, Neural Networks, Machine Learning
- Probability, Stock Markets, Options