Nick Chandler

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Education

- **Western Washington University** — Bellingham, WA
  Bachelor of Science in Computer Science -ABET Accredited; GPA: 3.95 — *Sept. 2020 - June 2024*
  Minor in Mathematics, Minor in Statistics

Experience

- **Western Washington University** — Bellingham, WA
  Computer Science Research Assistant — *March 2023 - June 2024*
  - **Deep Learning**: Worked on a team of 4 students under Professor Brian Hutchinson to prototype and produce a supervised deep learning pipeline in PyTorch which makes predictions on parameters of binary star systems given synthetic light curve data.
  - **Mitigating Model Uncertainty**: Implemented custom loss functions using ideas from probability theory and bayesian statistics and reparamterized the model weights to account for the uncertainty in model predictions.
- **Western Washington University** — Bellingham, WA
  Mathematics Research Assistant — *Oct 2022 - June 2024*
  - **Development of Statistical Tests**: Assisted Professor Kimihiro Noguchi in the development of a novel class of two-sample statistical tests. My responsibilities were predominantly to find conditions under which the test behaved well through a simulation study and to demonstrate use of the test on a cognitive psychology dataset.
  - **Distributed & Parallel Computing**: Found multiple speedups of the simulation code of over 300% through the use of parallel computing libraries in R and task distribution techniques using HTCondor.
- **Western Washington University** — Bellingham, WA
  Mathematics Tutor — *Sept. 2022 - June 2024*
  - **Tutoring Mathematics**: Assisted approximately 20 students per week on upper-level mathematics topics such as multi-variable calculus, linear algebra, probability theory, statistics, differential equations, and discrete mathematics.
  - **Team-Building**: Participated in weekly training covering team-building, interpersonal communication, and mathematics.

Projects

- **Arbitrarily Deep Neural Network (Numpy)**: Built an arbitrarily deep neural network from conception for a machine learning course using python's numpy library. This required the implementation of the feed-forward behavior, loss functions, backpropagation, stochastic gradient descent, and minibatching in numpy without higher-level frameworks.
- **Automatic Stock Trader**: Built an automatic stock trader using SQL embedded in Java. It queried over 1 million instances of over 30 years of stock data and executed a pre-specified trading strategy.
- **Elasti-Cache Web Server**: Built a web server which would take requests and cache the data for repeat uses from conception using C and UNIX sockets TCP functionality.

Presentations/Publications

- **Presentation at PIMUC 2023**: Presented a powerpoint on research regarding the development of a novel class of statistical tests at the PIMUC Conference at Gonzaga University.
- **Poster at WWU Scholar's Week 2023/24**: My team and I created a poster to present the state of our research regarding a machine learning pipeline to predict parameters of eclipsing binary star systems.
- **SIAM Poster 2023**: Presented on the simulation study portion of the statistics research with Professor Kimihiro Noguchi at the Society of Industrial and Applied Mathematicians (SIAM) biennial meeting.
- **JMM Poster 2024**: Presented on the application of the statistical tests I am developing with Professor Kimihiro Noguchi to reaction time data at the Joint Mathematics Meetings (JMM) conference.

Programming Skills

- **Languages**: Python, R, SQL, Java, C, Bash **Technologies**: UNIX, PyTorch, TensorFlow, Git, HTCondor