Addison Richards
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Github link
LinkedIn link

Highlight of Skills

Excellent understanding of scientific computing and mathematics for simulation and data analysis.
Experienced with Python programming utilizing packages such as NumPy and Pandas for analysis of large datasets.
Experienced with C++ and object-oriented software development practices.

Experience

Research Assistant - University of Waterloo (Gingras group), 9/19 – 1/20 (4 Months) (sample)

- Developed Markov-chain Monte Carlo (MCMC) programs in C++ which were run in parallel using high-performance computing (HPC) clusters to simulate electromagnetics models.
- Developed Python programs for statistical analysis of large datasets generated by MCMC simulations.

Research Assistant - University of Waterloo (Edginton group), 5/19 – 9/19 (4 Months) (sample)

- Developed Matlab programs to simulate particle deposition and clearance in lung pathways.
- Gave presentations to applied math faculty and FDA clients.

Research Assistant - University of Waterloo (Ingalls group), 1/19 – 5/19 (4 Months) (sample)

- Developed MCMC programs to simulate a gene expression model using Matlab and C++ which were run on HPC clusters for large-scale data generation and developed data analysis programs.
- Developed optimization programs using multiple shooting and simulated annealing algorithms.
- Coauthored a conference publication on optimal experimental design for a stochastic model.

Research Intern - Okinawa Institute of Science and Technology (Shannon group), 5/18 – 9/18 (4 Months) (sample)

- Developed MCMC parallel programs in C++ for stat. mech. simulations which were run on a HPC cluster.

Research Assistant - University of Waterloo (Gingras group), 9/17 – 1/18 (4 Months) (sample)

- Developed MCMC parallel programs in C++ for simulation of electromagnetics on HPC clusters.
- Contributed to the publication by L. Bovo et. al. by providing MCMC simulation data.

Skills

C++, Python, R, Matlab, JavaScript, MPI, Bash, data analysis, simulation, lin. alg., diff. eqns., research.

Education

University of Waterloo, BSc Mathematical Physics, Sept 2015 – May 2020 (expected).
Courses in advanced mathematics and physics, computer science, statistics, and scientific computing.

Publications

N. Braniff, A. Richards, B. P. Ingalls, IFAC-PapersOnLine **52**, 255 (2019).
L. Bovo, et. al., Nature Communications **9**, 1999 (2018) (Acknowledged for providing MCMC simulation data).

Awards

2 × NSERC Undergraduate Student Research Award (Sept 2017 – Jan 2018) & (Jan 2019 – May 2019).

Personal Projects

adsrichards.github.io