Bangyen Pham

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EDUCATION

Northwestern University | **Evanston, IL**
M.S. in Computer Science | **GPA:** 3.80/4.00 **March 2024**

University of Virginia | **Charlottesville, VA**
B.A. in Mathematics and Economics | **Minor in Computer Science** | **GPA:** 3.98/4.00 **May 2021**

SKILLS & INTERESTS

Skills: Racket (Advanced), Python (Advanced), C++ (Intermediate), Ruby (Intermediate)
Interests: Rock Climbing, Pin Collecting, Film Photography, Music Festivals

PUBLICATIONS & PROJECTS

Publication | Generalized Collective Algorithms for the Exascale Era **Dec 2022 – July 2023**

- Developed system-agnostic **MPI** collective algorithms to achieve up to **4.5x** performance improvement for exascale supercomputers, showcasing strong skills in algorithm design and optimization

Project | Evaluating Gradual Typing with Test Suite Minimization **April 2023 – March 2024**

- Researched the efficacy of gradual typing in reducing developers' testing efforts, exploring alternative type enforcement strategies and test suite minimization algorithms for **Typed Racket** programs

Project | Using Generative AI for MPI Autotuning **Dec 2022 – Sept 2023**

- Implemented **Generative Adversarial Networks** to dynamically select algorithms and parameters, addressing benchmark inefficiencies as part of an autotuner for optimizing **MPI** collective operations

Project | Revisiting Computation for Research: Practices and Trends **Sept 2022 – June 2023**

- Conducted interviews with **138** researchers across institutions to reveal evolving computational practices and emerging trends, demonstrating proficiency in research methodology and data analysis

PROFESSIONAL EXPERIENCE

Software Development Intern | Center for Nuclear Femtography | Charlottesville, VA **Summer 2021**

- Translated a Fortran implementation of the Runge-Kutta method to C++ and parallelized it using MPI, resulting in a **30%** reduction in computation time for solving integro-differential equations
- Assisted with code integration and debugging within simulation frameworks, ensuring seamless operation and accuracy of nuclear femtography simulations
- Provided programming expertise and collaborated with research team members to enhance computational methods and techniques for research

Learning Consultant | Math Collaborative Learning Center | Charlottesville, VA **Sept 2019 - May 2021**

- Provided personalized tutoring sessions to undergraduate students in various mathematical subjects, including calculus, algebra, and statistics
- Developed tailored instructional materials and study guides to enhance students' understanding and proficiency in mathematical concepts
- Successfully mentored over **20** students, fostering a supportive learning environment and boosting students' confidence in mathematics through clear explanations and targeted practice exercises