Michael Pham

ktm-p.net

Email: ktmpham@berkeley.edu
Mobile: (916)-968-0563

Education

- **University of California, Berkeley** — Berkeley, CA
  B.A. in Computer Science and Mathematics — *Aug 2022 – Present*
  Minor in Data Science
  - GPA: 3.865
  - Member of Upsilon Pi Epsilon Honor Society
  - Member of EECS Honors Program
  - Dean's List, Honors to Date

Professional Experience

- **Self-Employed** — West Sacramento, CA
  Calculus Tutor — *June 2025 – Present*
  - Private tutor for Calculus I and II.
  - Created lessons tailored to individual students' needs.
  - Explained and reinforced key concepts through examples and practice problems for students.

Projects

- **Audio Analyzer and Visualizer** | Java, Processing
  - Displays different representations of audio, including waveform and polar graphs, alongside a responsive visualizer.
  - Implemented (smoothed) DFT and FFT to extract frequency information and create audio-responsive visuals.
  - Implemented beat detection by comparing the audio's level to previous in stack.
- **Build Your Own World** | Java
  - An interactive maze exploration survival game featuring enemies.
  - Implemented a pseudo-random world generation system via Prim's Algorithm.
  - Created a smooth lighting system using BFS, alongside pathfinding enemies with A*-Search Algorithm.
  - Features saving functionalities implemented through serialization.
- **Optimizing Convolutions** | C, OpenMP, OpenMPI, SIMD
  - Implemented a naïve 2D Convolution algorithm and optimized it.
  - Optimizations include efficient cache usage, parallel programming, vectorizing operations, loop unrolling, and working with pointers. Achieved around a 50x speedup.
- **A Secure File Sharing System** | Golang
  - Designed and implemented a secure file sharing system using cryptographic library functions.
  - Implemented file creation, appending, sharing, and deletion among multiple users across multiple devices.
  - Utilized symmetric encryption, HMACs, and digital signatures to ensure security.
  - Extensively tested implementation, writing over three thousand lines of test code.
- **MapReduce** | Rust
  - Implemented a MapReduce coordinator in Rust which distributed map and reduce tasks to workers.
  - Ensured memory and thread safety for effective parallelization.

Relevant Coursework

- **Computer Science**: Data Structures, Discrete Mathematics, Computer Security, Efficient Algorithms and Intractable Problems, Computability and Complexity
- **Mathematics**: Introduction to Analysis, Abstract Algebra, Abstract Linear Algebra, Cryptography, Numerical Analysis, Programming for Mathematical Applications

Technical Skills

- **Programming Languages**: C, Golang, Java, Julia, MATLAB, Python, R, RISC-V, Scheme, SQL
- **Frameworks/Libraries**: Matplotlib, Numpy, OpenMP, Pandas, PyTorch, scikit-learn, Seaborn, TensorFlow
- **Tools**: Docker, gdb, git, Logism, LaTeX, Valgrind