Nathan Johnson

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Education

Loyola University of Chicago Chicago, Illinois *B.S.*
Computer Science Expected Graduation: May 2026

GPA: 3.94

Relevant Coursework: Data structures and Algorithms, Discrete Math, Calculus I & II, Linear Algebra, Computer Systems, Programming languages.

Experience

Argonne National Laboratory
Lemont, IL
Computational Research Aide | Sophomore May 2024 – August 2024

- Contributed to the ARCHES (Argonne Configuration Interaction for High-Performance Exascale Systems) project under the CPS division.
- Specialized in GPU offloading using SYCL for the Aurora supercomputer, focusing on performance-critical applications.
- Performed code profiling and bottleneck analysis using MAQAO, identifying and implementing optimizations for computational kernels.
- Applied OpenMP threading to parallelize workloads effectively, enhancing the scalability and efficiency of the codebase gaining extensive experience in high-performance computing (HPC).

Computational Research Aide May 2023 – August 2023

- Assisted in the developing Python-based HPC workflows for the CPS division.
- Conducted benchmarking using cProfile and optimized parallel computation with mpi4py.
- Integrated C/C++ libraries into Python workflows using ctypes and pybind11, streamlining performance-critical operations.
- Enhanced understanding of cross-language performance optimization and parallel programming paradigms.

Loyola University of Chicago
Chicago,
Computer Science tutor January 2024 – Present

- Weekly tutor in the Computer Science Department tutoring all Computer Science classes up until Data Structures II.
- Aid students in understanding low-level concepts such as memory management and optimization techniques in C.

Skills

- **Programming Languages:** Python, C++, Java, Scala, Ruby.
- **HPC and GPU Computing:** OpenMP, SYCL, MAQAO, mpi4py.
- **Performance Optimization**: Code profiling, threading, and heterogeneous computing.