Benjamin Li

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Education

Boston University — Boston, Massachusetts
Bachelor of Science in Computer Engineering — *Sep 2018 – May 2022*
Bachelor of Science in Electrical Engineering — *Sep 2018 – May 2022*
GPA 3.88/4.0 (magna cum laude) — *Dean's List (all semesters)*

Work Experience

Microsoft — Redmond, Washington
Software Engineer - Azure Batch Computing — *Aug 2022 – Present*

- Collaborated across departments to redesign the Azure Batch Scheduler through decoupling with resource management, removing anti-patterns and facilitating the next generation scheduler
- Spearheaded efforts to revamp production testing of service upon release through instrumented scenarios, resulting in regressions being caught before they reach the customer
- Developed and released 2 new API endpoints for interacting with compute nodes

Microsoft — Redmond, Washington
Software Engineering Intern - Data Center Construction Engineering — *May 2021 – Aug 2021*

- Constructed Windows application that automates parallel bulk file uploads to Azure Digital Asset Management using .NET WPF and internal Microsoft APIs
- Designed overall software architecture and file synchronization algorithm

Hewlett Packard Enterprise — Andover, Massachusetts
Big Data Engineering Intern - Scale-out Data Platforms — *May 2020 – Dec 2020*

- Built ingest microservice for collection of data-center statistics from HPE RDA Domino using Java, Kubernetes, and shell scripting
- Led effort to develop and implement CI/CD road-map, including integration with Jenkins, Artifactory, and Kubernetes

Research Experience

TimeLord — Boston, Massachusetts
Collaborator — *Jul 2023 – Aug 2023*

- Worked with the Computer Architecture and Automated Design Lab at Boston University on Timelord, a research project that exploits wasted cycles during MPI communication
- Devised novel low-overhead method to track function calls as part of a runtime prediction algorithm
- Produced research paper titled Cycle-Stealing in Load-Imbalanced HPC Application, which is currently under review

Boston University Integrated Circuits & Systems Group — Boston, Massachusetts
Undergraduate Researcher — *Jan 2020 – May 2020*

- Assisted research team with adding vector extension capabilities to Blackparrot, a linux-capable accelerator host multi-core CPU, using Verilog for architecture implementation

Publications

Cycle-Stealing in Load-Imbalanced HPC Applications (Under Review)
International Workshop on Runtime and Operating Systems for Supercomputers (ROSS) 2023
Po Hao Chen, Akshaya Bali, Pouya Haghi, Carlton Knox, Benjamin Li, Anthony Skjellum, Martin Herbordt

Teaching Experience

Course Co-Instructor CS200: Applied Problem Solving — Jan 2022– May 2022
- Co-Instructed an elective course in the Computer Science department under the advisory of Dr. Dora Erdos for two semesters
- Created engaging lecture material about algorithmic programming techniques not taught as part of a conventional courseload

Teaching Assistant EC527: Multi-core and GPA Programming — Jan 2022 – May 2022
- Hosted office hours to answer students' questions about graduate-level course material and provided guidance for final project

Teaching Assistant EC503: Advanced Data Structures & Algorithms — Jan 2020 – May 2020
- Hosted office hours to answer students' questions about graduate-level course material as a Sophomore
- Devised workshop on leveraging Git as a version control tool

Projects

drugML | *www.drugml.xyz* *drugML/drugML*
- Research tool that predicts drug-disease interaction based on molecular properties using deep-learning
- Formulated deep-learning model using TensorFlow and crafted an automated method for extracting chemical properties from PubChem and other public sources.

uDrop-Generation | *Presentation* *BU-EC552/uDrop-Generation*
- Aligned efforts with Boston University's Cross-Disciplinary Integration of Design Automation Research (CIDAR) lab to improve microfluidic droplet detection through the use of filters and edge-detection fine-tuning algorithms.
- Responsible for threshold algorithm implementation into existing code base. Currently being used by the research lab

WikiWhere | *https://wikiwhere.rciliberto.com/* *wikiwhere/wikiwhere*
- Graph-based visualization of hyperlink connectivity among Wikipedia articles
- Optimized shortest path algorithm by implementing a multi-threaded, bi-directional, Breadth-First Search of Wikipedia article data.

Raspberry Pi/Jetson Nano Computing Cluster | *Design* *buhpc/cluster*
- 14-node mixed Raspberry Pi/Jetson Nano cluster, currently being used for club workshops
- Coordinated members to build cluster, soldered custom DC power supplies for individual nodes, and oversaw cluster security

Awards & Achievements

Student Cluster Competition at SC22 Highest HPL Special Award — 2022

Student Cluster Competition at SC21 Top 3 Benchmarking Score — 2021

ICPC North America Northeast Regional Competitor — 2021

Academic Activities

Mentor Massachusetts Supercomputing Team — Mar 2022 – Nov 2022
- Supported the Massachusetts Green Team in the form of technical training, vendor outreach, and hardware guidance, resulting in the team winning the Highest HPL Score Special Award

Co-Founder Boston University Competitive Programming Team — Jan 2021 – Nov 2021
- Competed at the ICPC North America Northeast Regional competition

President Boston University High Performance Computing Club — Apr 2020 – May 2022
- Expanded the club's presence in the HPC community by giving presentations at the Boston Linux and Unix and the Boston HPC & GPU groups
- Designed and managed two on-premise computing clusters, and facilitated interactive experiences with cluster software during club meetings

Captain Massachusetts Supercomputing Team — Nov 2019 – Nov 2021
- Led the Massachusetts Green Team, which consisted of multiple Boston-area colleges, to compete in 2 Student Cluster Competitions
- Ran experiments on simulation programs with different node and core configurations and produced paper detailing reproducibility results
- Established partnerships between the team and multiple industry vendors and the HPC community