Benjamin Le

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EDUCATION

University of Pennsylvania | *MSE (accelerated Master's) + BSE in CS* — Philadelphia, PA   May 2025

Double major: Mathematics • Coursework • GPA: 3.96

USAJMO • National Merit Scholar • Full scholarship to take university-level Math courses at Stanford ULO

- Languages: C++, Java, Python, JavaScript, HTML, Rust, SQL
- Cloud & Other technologies: AWS (EC2, S3, ELB), boto3, DynamoDB, MongoDB, Docker, Kubernetes, Django, Node.js, React.js, Three.js, OpenAPI, pandas, Redis, PyTorch, NumPy

TECHNICAL EXPERIENCE

Hudson River Trading | Core Intern (C++) | New York City, NY   May 2023 – August 2023

- Incoming C++ core developer intern at HRT, writing low-latency code to help the company's research and trading infrastructure

Photon Commerce | SWE Intern | San Francisco, CA   January 2022 – August 2022

- Planned, proposed, and implemented a clustering algorithm to automate the extraction of templates from a dataset of 100k+ invoices
- Designed & created a novel pipeline to improve the speed, cost, and extensibility of the core extraction process
- Drove the development of a REST wrapper around the Federal Reserve's new instant payments API and integrated the wrapper with the company's current database of invoices & statements. Received commendation from lead algorithms developer and the CEO on the robustness and attention to detail

Penn Labs | Team Lead & Backend Developer | Philadelphia, PA   September 2021 – Present

- Lead the 10-person team to build OHQ, an online office hours system serving 2,700+ active users
- Developed the Django REST backend and data architecture & OpenAPI-compliant documentation system
- Currently, building a high-performance analytics engine that asynchronously record user activity to perform data analysis

University of Pennsylvania | TA & Grader | Philadelphia, PA   September 2022 — Present

- CIS 2620 Automata, Computability & Complexity: core undergraduate course on automata, computation hardness, and complexity; STAT 5100 Probability: core graduate Statistics course in Wharton

PROJECTS

My projects & experiences are described in more detail on my website.

Penn Cloud | *C++, Javascript, HTML*   March 2023 – May 2023

- Collaborated in a group of 4 to create a cloud platform like Google Drive, in addition to a webmail service
- Built a robust key-value store akin to Google File System that supports load-balancing, replication & crash recovery using gRPC
- Implemented a subset of the HTTP protocol & created a multifeatured frontend that allows sending emails, uploading & downloading files, and traversing them in a folder structure

Spruce Programming Language | *C++, LLVM, Compiler Design*   June 2022 – August 2022

- Assembled a miniature language & compiler using the LLVM framework with full support for mutable variables, PEMDAS arithmetic, control flow statements like If and For, and JIT compilation
- Implemented recursive descent parsing and shift-reducing parsing algorithms and learned fundamental concepts in LLVM design like static single-assignment optimizations and how JIT compilation works

Penn Mail Search | *Python, JS, MongoDB, EC2, Web Crawler*   January 2022 – March 2022

- Created a web crawler to index Penn's student & faculty directory using Selenium, built a REST API with Flask, and deployed via gUnicorn on AWS EC2 with a NoSQL database hosted via MongoDB
- Published a 5-star Chrome extension for Penn students to easily search for the email of colleagues from different sub-colleges