

Hassam Uddin

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Education

University of Illinois Urbana-Champaign

May 2024

Bachelor of Science in Computer Science

GPA: 4.0

SIGma (Theory) founder. **SIGPwny** (Cybersecurity) Admin. **ACM Infra** Lead. Researcher at **Quant**. Member of **ICPC**, and Illini Motorsports. Course Assistant for Discrete Structures and Computer Architecture.

Employment

IMC Trading

June 2023 – August 2023

Incoming Software Engineering Intern

Chicago, IL

Amazon

May 2022 – August 2022

Software Engineering Intern

Seattle, WA

- Created interpreter for custom Excel-like programming language in **Python** to allow non-technical teams to migrate existing report generation and quality control framework to an automated system, saving the accounting and business intelligence teams thousands of man-hours per quarter.
- Utilized **AWS Lambda** and **API Gateway** to create a front-facing API for scheduling runs of new system.

LLVM Research Group

Aug 2021 – Present

Research Assistant

Urbana-Champaign, IL

- Developing native code generation for tensor/matrix instructions in LLVM using **C++** (TLX).
- Parsing and manipulating ISA documentation for automatic instruction selection using **Python** and **Racket** (Pending ASPLOS '23 acceptance).
- Acquired expertise working with large codebases (1.6M+ LOC) and across teams.

Northwestern University

June 2020 – June 2022

Research Assistant

Evanston, IL

- Developed CV algorithms in **TensorFlow** and **PyTorch** to automate hundreds of hours of ultrasound tracking.
- Augmented existing literature with additional data and domain expertise relevant to ultrasound tracking.
- Designed and built pipeline for efficient processing and analysis of 2 TB+ of data using **Python**.

Unitrol Electronics

May 2018 – Aug 2018

Software Engineer

Northbrook, IL

- Created full-stack web application that allows remote control and monitoring of welding equipment.
- Developed **Express.js** API for on-welder chip to record weld results into a **MongoDB** database.
- Created front-end in **HTML**, **CSS**, and plain **JavaScript** to display results and queue new welds.

Technical Projects

Tiny SQLite

2023

- Developed a SQL compiler, optimizer, and engine capable of using and modifying valid SQLite databases in **C++**. Used **C++20** and modern C++ techniques.

Shiritor.io

2022

- Collaborated in a team of four to build an online version of the Japanese word game Shiritori.
- Developed back-end lobby and game mechanisms using **Flask** and connected with front-end components written in **React** and **Typescript**. Delegated tasks, led weekly meetings, and architected back-end.

GameBoy Emulator

2019

- Analyzed community documentation and official processor manuals to create a cycle accurate emulator of the GameBoy processor and necessary supporting components in **C++**.

Compiler

2016 - Present

- Developed a compiler for a custom imperative programming language using **OCaml** and **LLVM**.
- Used as a starting point for implementing new ideas such as type inference, register allocation, and peephole optimizations.