Muhammad Khalid

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EDUCATION

University of Iowa — Iowa City, IA
*Accelerated **M.S.** in **Computer Science*** — *Expected Graduation - 2027*
- Accepted into competitive undergraduate to graduate program

Grinnell College — Grinnell, IA
*B.A. in **Computer Science*** — *Expected Graduation - 2026*
- Cumulative GPA: 3.67/4.0, In-major GPA: 3.73/4.0, Deans list Spring 2023 & Fall 2023
- Selected Coursework: Computational Methods, Software Design & Development, Operating Systems & Parallel Algorithms, Data Structures & Algorithms, Object-Oriented Programming, Linear Algebra

EXPERIENCE

Research Assistant — May 2024 – Dec 2024
ELBICA Lab, Grinnell College — *Grinnell, IA*
- Developed **python** software to integrate visual and verbal data stored using **distributed representations**
- Implemented **causal inference** models to guide **decision-making** based on analyzed data
- Utilized **OpenCV** to break down parts of 2-D graphs to be used for inference

Software Developer, Intern — June 2023 – Aug. 2023
10Pearls — *Karachi, Pakistan*
- Developed a full-stack fitness-tracking application using **Flask REST** with **JavaScript** & **PostgreSQL**
- Implemented **Flask authentication** with password hashing for secure user accounts
- Implemented **SQLAlchemy ORM** resulting in **40% less code** & improved query performance

Computer Science Grader — Sep. 2023 – Dec 2024
Grinnell College — *Grinnell, IA*
- Graded **40+** weekly labs, reading assignments, and projects in **Java** (DSA), **Racket** (Functional Programming)
- **Debugged** code written by students, providing **detailed feedback** during weekly meetings

PROJECTS

PioneerMart | *AWS, React Native, TypeScript, Django, PostgreSQL, Expo, Jest, Nginx* — Jan 2025 – present
- Led a team of **4 developers** to build an **online marketplace app** for Grinnell students using **agile** workflows
- Implemented automated **image/text moderation**, **real-time chat**, **OTP auth**, and **AWS S3** file storage
- Grew to **300+ active users** within **1 week** through campus outreach and rapid iteration

MCMC Cipher Cracker | *AWS Lambda, Python, Next.js, TypeScript* — August 2024
- Developed a **full-stack** web app to crack substitution ciphers using a **serverless AWS backend** serving a **Next.js** frontend
- Implemented an **MCMC-sampling algorithm** with custom acceptance probability & cipher space exploration
- Leveraged concurrent **Lambda invocations** and **ChatGPT API** to select the most accurate deciphered message

EXTRACURRICULAR EXPERIENCE

Pioneer Weekend — September 2023
Grinnell College — *Grinnell, IA*
- Designed an **app** to reduce college waste with **automated listings** via the **ChatGPT API**, winning **$900**
- Collaborated w/ a team of **3 developers** to present an **MVP** to a panel of **entrepreneurs** & **college president**

MSA President — Aug. 2024 – present
Grinnell College — *Grinnell, IA*
- Lead the Muslim Student Association w/ an **$11000+** annual operating budget and **70+** active student members
- Organize regular events on campus through collaborative initiatives w/ other organizations

TECHNICAL SKILLS

Proficient: Python, TypeScript, Next.js, Django, React, React Native, Expo
Familiar: AWS, PostgreSQL, Nginx, Jest, Zustand, C, Java, Flask