Utkarsh Bajaj

LinkedIn
Portfolio

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EDUCATION

Carnegie Mellon University
Master of Science in Software Engineering — August 2024 – December 2025

WORK EXPERIENCE

Microsoft — Hyderabad, India
Software Engineer, Azure Automation — Jul 2022 – Jul 2024

- Developed backend **.NET Application** to migrate PowerShell 5.1 and Python 3.8 customer scripts from **VM-based monolithic executions to containerized microservices architecture** using **C#, Docker** and ensuring adherence to agile methodology
- Enhanced system security by executing scripts in isolated Hyper-V containers, **boosted success rates from 99.8% to 99.9%** by eliminating VM dependencies and resolving customer-reported bugs for over **200M+ monthly Python and PowerShell executions** during the migration process
- Designed and implemented internal **APIs** by configuring localhost inside containers and **developed PowerShell cmdlets and Python packages** that enabled customers to retrieve stored assets (e.g., certificates, credentials)
- Collaborated with team to debug and deploy microservice for container-server communication, facilitating expansion into new regions. Initiated **automation of monitoring and continuous deployment scripts, reducing work hours** required for scaling to additional regions and data centers

Software Engineering Intern, Azure Automation — Jan 2022 – Jun 2022

- Developed containerized application using C#, .NET Core and Docker to enable PowerShell 7.2, Python 3.10 scripts on Azure Automation, unit testing 95%+ lines of code written
- Achieved significant adoption with **150+ customers successfully running 10,000+ scripts** in preview

TECHNICAL SKILLS

- Programming Languages: C, C#, C++, Python, Golang, JavaScript, Java
- Databases: Microsoft SQL Server, MySQL, MongoDB
- Frameworks and Tools: .NET, Docker, GDB, Azure, Azure DevOps, Azure Data Explorer, Node.js, Socket.io, Vim, Neovim, NumPy, pandas, LLMs

PROJECTS

Computer Systems — Oct 2024

- Built **C-based cache simulator with an LRU algorithm**, computing hits, misses, dirty bytes, and evictions from configurable cache settings, gaining practical experience in cache management and performance optimization
- Developed optimized 64-bit general-purpose allocator in **C for malloc, realloc, calloc, and free**, utilizing an **explicit free list** to enhance memory allocation efficiency, reduce fragmentation, and improve overall performance
- Implemented a **multithreaded HTTP proxy in C**, handling concurrent client requests, caching, and basic networking to facilitate communication between clients and servers
- Created a **tiny shell program** in C, managing processes (foreground & background), job control, and signals

Codeforces Rating Updates — Aug 2021

- Engineered **full-stack application** that automates the delivery of Codeforces contest rating updates, **utilizing Google Firebase for user data management and AWS EC2 for execution of Python scripts**
- Hosted **user interface, made with HTML, CSS and JavaScript** on Github Pages, application sends email to the user upon rating publication, sparing need for manual checks on Codeforces website

Find IMDB Ratings — Oct 2020

- Created **Python script using 'BeautifulSoup', 'requests', and 'pandas'**, scrapes web for movies and stores data in .csv file for user analysis, at Hacktoberfest 2020, attracted multiple forks and contributions from 5+ individuals on GitHub

LEADERSHIP/ACHIEVEMENTS

- **Graduate Research Assistant** at CMU: Developing a platform using LLMs and multi-agent systems to automate code evaluation with accurate grading, detailed feedback, and personalized learning insights
- Achieved peak **contest rating: 1839** on Leetcode, securing position in **top 7% contestants globally**