YASH ANAND

Software Engineer hi@yashanand.dev www.yashanand.dev +1 412 909 5947

A passion for web applications, programming languages, and computer systems, with a track record of delivering high-quality solutions for both enterprise and product-based startups. Master's from a top CS school, with experience that spans researching WebAssembly, as well as designing and implementing kernels and optimizing compilers.

HONORS

Director's Scholarship
Carnegie Mellon Univ. (2022)

Special Recognition Award
Shell (2022)

VP CIO Award
Shell (2021)

Service Recognition Award
Shell (2021)

EDUCATION

Graduating in Dec 2023
Master of Software Engineering
Carnegie Mellon University, School of CS
CGPA: 3.9/4 • Pittsburgh, PA, U.S.A

Graduated in May 2019
Bachelor of Technology in Information Technology
Vellore Institute of Technology
CGPA: 8.5/10 • Vellore, India

Coursework (CMU)
Operating System Design and Implementation, Compiler Design, Software Architecture, Web Applications, Advanced Formal Methods, Intro to Computer Systems

Experience (CMU)
Teaching Assistant for Web Applications
Teaching Assistant for Software Architecture

EXPERIENCE

Jul 2019 - Jul 2022
Software Engineer
Shell
Bangalore, India (On-site)

- Optimized load time of org-wide skills and resource management applications by 70%.
- Pioneered a CI/CD initiative for the platform, and implemented mission-critical software for managing projects, resources, and security incidents across the organization.
- Winner of org-wide VP CIO Award in May 2021, and Service Recognition Awards.

Sep 2018 - Jul 2019
Lead Software Developer
Vicara
Vellore, India (Part-time, Hybrid)

- Solely developed the desktop user interface for a wearable gesture controller called Kai.
- Lead software team for a product that raised over $100k via crowdfunding on Indiegogo.
- While simultaneously pursuing an undergraduate degree, built the entire web eco-system including UI component libraries, product website, auth intermediary, and many more.

Feb 2017 - Feb 2019
Software Development Intern
AppSecure
Vellore, India (Part-time, Remote)

- Single-handedly developed and designed multiple security-based SaaS apps during the start-up's foundational years while simultaneously pursuing an undergraduate degree.
- Pivotal work that contributed to start-up's listing in Forbes 30 under 30 Asia in 2017.
- Built a web app (rakshak.io) that was acclaimed at the RISE Conference in 2018.

PROJECTS

Carnegie Mellon • 2023
Pebbles Kernel & Hypervisor
C, x86 Assembly

- Implemented a Unix-like kernel for x86 with a robust user thread library, loader, drivers, with preemptive multitasking, multi-threading, demand paging, Copy-on-Write, etc.
- Type 1 hypervisor capable of running guest kernels, with support for virtual consoles.

Carnegie Mellon • 2023
WASM Dynamic Analysis
WebAssembly, Rust, Virgil

- Developed dynamic analysis and instrumentation tools for a WebAssembly engine.
- Submitted a paper to ASPLOS titled "Flexible Non-intrusive Dynamic Instrumentation for WebAssembly" evaluating several well-known techniques against our novel design.

Carnegie Mellon • 2023
C Compiler
OCaml, x86, WebAssembly

- Designed and constructed a memory-safe optimizing compiler for a subset of the C language achieving runtime performance on par with the industry-standard GCC (-O1).
- Features included strings, function pointers, arrays, structs, and a WebAssembly target.

Carnegie Mellon • 2023
Dynamic Memory Allocator
C, Linux

- Implemented a high-performance dynamic memory allocator surpassing the efficiency of C's standard malloc package for a diverse set of program traces.
- Achieved rank 1 performance & utilization in 15213 summer '23 class of 150 students.

Carnegie Mellon • 2022
Chesster
JavaScript, Python, Django

- Built a fully-functional online chess multiplayer game that featured in-game spectators, live chat, and a global live feed of top-spectated games.
- Uses vanilla JavaScript and WebSockets for all it's complex asynchronous interactions.

Top Skills
Web Applications
Virtualization
Kernel Programming
Compiler Design

Languages
C C++
OCaml
JavaScript
Python
x86 Assembly
WebAssembly

Tools/Technologies
Vim
Angular
React
Django