

# YASH ANAND

## Software Engineer

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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

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### Pebbles Kernel

C, x86 Assembly

- Designed and implemented an x86 Unix-like kernel with a robust user thread library of mutexes, condition variables, a loader, and drivers for console, keyboard, and timer.
- Support for multi-threading, preemptive multitasking, virtual memory, Copy-on-Write.

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.

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### 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.

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### 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.

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### 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 its complex asynchronous interactions.

### Top Skills

Web Applications

Software Architecture

Kernel Programming

Compiler Design

### Languages

C / C++

OCaml

JavaScript

Python

x86 Assembly

WebAssembly

### Tools/Technologies

Vim

Angular

React

Django