Aadi Desai

✉ aadiydesai@gmail.com 📱 +447916412721

in/aadidesai 📍 London, UK 🌐 8bit.lol

Education

Imperial College London   *Oct 2019 – Jun 2023*

Master of Engineering in Electronics and Computer Engineering | **First Class with Honours**

Skills

Rust, Go, Git, Cloudflare Workers, TypeScript, Python, C++, PostgreSQL, Docker Compose, Solidity, F#, SystemVerilog

Projects

IRC-style Chat Server and Terminal Client GitHub: supleed2/go-chat   *Dec 2023 – Jan 2024*

- Built a chat server and client, providing a terminal user interface using the Elm architecture
- Types are imported to client and server code, maintaining a single source-of-truth for communication
- Clients connect to the server using WebSockets, and exchange messages via JSON
- Server maintains recent chat history for multiple rooms, rooms can be created / destroyed on-demand
- Go learning project, including WebSockets, Goroutines and Channels for message passing
- Used mutexes to avoid race-conditions and concurrency bugs when shared data can be written to

Automated Verification Discord Bot GitHub: supleed2/nanobot   *Jul 2023 – Aug 2023*

- Developed a Discord bot for member onboarding, built on the Poise framework and the Shuttle platform
- Replaces manual checks for Imperial student status, as requests were often missed during busy periods
- Running in production for the last year, allowing members to join quickly and independently
- Leverages Cloudflare Pages + Functions to query the university API without storing sensitive login credentials
- Rust learning project in a real-world environment, with active users providing feedback

Final Year Project: FPGA Accelerator for StackSynth GitHub: supleed2/EIE4-FYP   *Oct 2022 – Jun 2023*

- Created a LiteX + SystemVerilog project to generate audio on a custom OrangeCrab FPGA accelerator board
- Intended for use in the 3rd Year Embedded Systems module of the Imperial Electrical Engineering course
- LiteX wrapper module connecting the custom designs and existing IP, e.g. the integrated RISC-V CPU, VexRiscV
- Designed SystemVerilog modules which are instantiated in the LiteX wrapper: a CAN-bus receiver to accept messages from connected StackSynth boards, a 64-channel 48kHz configurable wave sample generator
- Includes C++ demo software for the integrated CPU, to be replaced with student-written coursework code

Experience

Junior Embedded Software Engineer – Prolec Ltd   *Apr 2024 – Present*

- Working on automated safety systems for construction and excavation equipment, including the ability to restrict power and prevent equipment from entering dangerous areas or unstable positions
- Reducing program size in C and C++, giving space for new features on existing space-constrained hardware

Digital Design Engineer – Nordic Semiconductor   *Apr 2022 – Sep 2022*

- Developed open-source tooling for syntax highlighting and configurable style / syntax linting of SystemVerilog
- Updated SystemVerilog simulation designs to use only synthesizable constructs, for Verilator compatibility
- Gathered feedback from colleagues for improvements to the editor tooling, such as linting rules to add

VEX EDR International Robotics Competition   *Sep 2017 – May 2018*

- Designed and built components for our school team's robot, compensating for unreliable parts such as DC motors and encoders, using Proportional-Integral-Derivative feedback loop controllers
- Won awards in regional competition rounds securing a finalist position during the UK national event, for the international event held in Kentucky USA, where we represented the UK
- Robots from opposing teams compete in the assigned game both autonomously and controlled by a driver