Eric N Rodriguez

erod8112@uni.sydney.edu.au
0488699100
github.com/EricNRodriguez

EDUCATION

The University of Sydney

Bachelor of Engineering Honours and Science (Computer Science and Telecommunications); WAM: 92   *2018 – 2022*

EXPERIENCE

Neara   Sydney, Australia

Junior Software Engineer (Fullstack)   *Oct 2020 - Present*

- Worked on Neara Designer, an application targeted at utility providers to design, model and simulate physical assets collaboratively in the browser.
- Designed and implemented an automodelling pipeline for Essential Energy, bootstraping an engineering grade model from their existing GIS and pointcloud data in real time. This involved heavy use of spatial data structures to query objects in quazi-linear time (geobuckets, octrees etc). This feature was rolled out to hundreds of ASP's across Australia.
- Completely redesigned and implemented the import capabilities of the application. This included a complete UI/UX redesign, implementation of cached dependency tracking, conflict resolution and more.
- Developed and maintained backend services (Java), including authentication, middleware, and a variety of business services.

Centre for IoT and Telecommunications   Sydney, Australia

Research Intern   *Dec 2019 - Feb 2020*

- Investigated security and privacy attacks in IoT communication systems.
- Proposed and demonstrated a DoS attack on LTE networks. This involved the modification of srsLTE (open source SDR, C++) to sniff system information blocks, force UE's to reselect to rogue eNB's and disable LTE services.

CHUR Networks   Sydney, Australia

Software Engineering Intern (Backend)   *Nov 2018 - Aug 2019*

- Designed and implemented concurrent algorithms for indoor localisation, focusing on 3D pathfinding, fingerprint matching and dead reckoning. Reduced the runtime of existing algorithms by over 50%.
- Developed and maintained backend services (Golang, NGINX).

SKILLS

- **Programming Languages**: Java, Go, Dart, JavaScript, HTML, CSS, C, Python
- **Frameworks/Libraries**: WebGL, React, Flutter
- **Tools/Technologies**: Git, AWS, NGINX

RELEVANT COURSEWORK

- Algorithm Design
- Discrete Mathematics
- Systems Programming
- Operating Systems
- Models of Computation
- Networking
- Linear Algebra
- Computer Systems
- Digital Logic
- Data Structures and Algorithms
- Object Orientated Programming
- Software Construction and Design

PROJECTS

Multi-threaded Asynchronous File Server   github.com/EricNRodriguez/JXServer

- Designed and implemented a performant file server in C.
- Handled concurrent socket connections using a thread pool, with each thread handling multiple non-blocking requests with the use of the epoll syscall.

Programming Language Interpreter   github.com/EricNRodriguez/Yum

- Designed and implemented a tree-walk interpreter in Go. The language supports all basic data types, strings, arrays, if-else statements, for loops, etc.
- Implemented operator precedence parsing for numeric and boolean expressions.