Joel Grunbaum

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Summary

I am a student studying a Masters of Electrical Engineering with a keen interest in computation and the semiconductor industry, and I am fascinated by the workings of the companies and products in this market. I have a strong background working in teams to find innovative solutions to difficult problems, resulting in successful outcomes.

Education

University of Melbourne **Melbourne**
Masters of Engineering (*Electrical with Business*) *2021–2022*

Bachelor of Science (*Electrical Systems*) *2018–2020*

Diploma of Computing *2019–2020*

University of Edinburgh **Edinburgh**
Bachelor Exchange *2019*

Scouts Australia Institute of Training
Certificate III Business Management *2017*

Wesley College **Melbourne**
IB Diploma Program *2015–2017*

Work Experience

IMC **Sydney**
Hardware Intern *2021–2022*
IMC is a proprietary high frequency trading firm. My internship consisted of:
- Designing and programming an FPGA to deterministically send ethernet frames in Verilog. I worked with a partner to develop a hardware module within the wider hardware system and to create a linking API.
- Building a trading bot to trade futures against other interns. The bot was written in C++ and through my optimisations was the fastest in the competition.

University of Melbourne **Melbourne**
Research Assistant *2021–*
Assisting researchers with external contracts for the university. I worked on:
- PCB design with Altium for a remote controller.
- FPGA protocol decoders written in VHDL.

Tutor *2021–*
Tutoring and demonstrating for subjects including:
- Digital Systems Design/Digital Systems, the subject covering digital logic and FPGAs.
- Computer Systems, the subject covering operating system concepts and computer networking.

Bluechiip **Melbourne**
Student Technician *2018–2021*
Bluechiip Ltd is an ASX listed developer of temperature and identification tracking solutions for rugged environments. While there, I:
- Ran an investigation into RFID tags and readers into their use as a potential compliment or competition to their tags.
- Repaired an existing VHDL FPGA code base from a non-compiling, abandoned state.
- Modified Linux kernel drivers for an embedded device to alter the display bit-depth and enable communication with 4G radios.
- Created new relationships with potential suppliers to purchase goods for internal evaluation.

Volunteering

Melbourne University Consulting Club (MUCC)
Sponsorships director *2021–*
MUCC is a university club promoting careers in the consulting industry. As sponsorships director, I coordinated a team to connect with external sponsors and organise events to present to our members.

Scouts
Group member *2009–2017*
Served as a senior member of my group, aiding in directing the unit, culminating in the achievement of my Queen Scout award.

Projects

Automated Arch Linux build program
A bash script to automatically build packages from the Arch User Repository (AUR), and to assemble them into a repository. The script includes a simple configuration file which enables package signing, parallel building and email notifications.

Contribution to Termux package library
Termux is an open source terminal environment for android with its own build and packaging system. I have added and maintained a range of packages for the program, working within its unique build environment and tooling.

Simplified C compiler
On exchange at the University of Edinburgh, I wrote a C to MIPS compiler in Java. The assignment was guided but was substantially self-implemented.

Soft CPU on an FPGA
A university project to implement a CPU on an FPGA in Verilog. This covered basic ALU and control operations, and required the assembly level programming of the CPU.

Administration of a home server
I have created and maintain a number of websites for my own use, which I host both on my own server and on various cloud providers. Through this, I have experimented with different web servers, virtualisation, docker, DNS configuration and Linux administration.

Skills

- Microsoft Office suite
- Linux systems administration
- Programming in C/C++, Java, Verilog, VHDL, MATLAB
- Typesetting with LaTeX
- Virtualisation with QEMU/KVM
- Containerisation with Docker and LXC
- Inventory management
- Leadership in small teams
- Self education
- Fast trialling and prototyping
- Communication of technical problems
- Interfacing with external entities

References

References and transcripts available upon request.