

ANDRE BODODEA

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EDUCATION

University of Edinburgh

2013 - Present

Electronics and Software Engineering, BEng with Honours

- Developed skills in computer architecture, embedded programming, analogue and digital circuit design, operating systems, object oriented design, and network management through various course-works and independent projects.
- Successfully completed the most challenging courses such as Compiling Techniques, Computer Design, Computer Architecture, Digital System Design courses, Analogue Circuit Design courses, Signal and Communication Systems courses, Biosensors, Bioelectronics.
- Having used Scientific Linux (DICE) for 4 years in University as well as various flavours of Linux for my personal computing and projects, have become very comfortable with Linux as well as gained good understanding of the workings of operating systems.

Lowell High School, San Francisco, USA

2008 - 2013

- Graduated with a grade point average of 3.6/4.0 (90%) from a top-50 public school in the USA.
- Achieved an SAT score of 2100/2400 prior to graduating.
- Founding member of the high school's first robotics team and head of the electronics subteam, advanced to the California Regional round of the FRC competition where we won the Chairman's Award

EXPERIENCE

Optimisation of Gaussian Process Regressions For Mobile GPUs

Autumn 2016 - Spring 2017

University Dissertation

- Developed a parallel implementation of Gaussian Process regression (a predictive learning technique) using parallel triangular solvers written in C++ and OpenCL, designed and optimised specifically for the ARM Mali GPU.
- Implemented and tested across a range of critical metrics, key optimisation techniques designed to take advantage of the Mali T604 GPU's hardware, including vectorised operations, buffer map vs copy operations, effects of various memory organisation schemes, etc.
- Uncovered critical bottlenecks fundamental to the OpenCL scheduling model within the triangular solver. These solvers been extensively studied in CUDA implementations but not OpenCL such as mine.

Indoor Positioning System Android App

Autumn 2016 - Spring 2017

- Developed an Android application that uses WiFi RSSI scans along with modified nearest neighbour algorithms to track a user on a visual floor-plan as he/she moves through any indoor space (where GPS is ineffective).
- Uses a persistent SQL database to create an application that learns to track the user better as he/she uses the application more in any given building

C Compiler

Autumn 2016 - Winter 2016

- Built a basic C compiler (including system calls, pointers, and structs) from scratch using Java.
- Includes all separate stages of compiling: Lexing, Parsing, Semantic and Type checking, and finally Assembly instruction generation.
- Obtained a much deeper understanding of how languages work under the hood, allowing for better reasoning about the programs runtime and possible optimizations.

Embedded Projects (FPGA)

Autumn 2015 - Summer 2016

- Used Verilog HDL to program Xilinx FPGA devices for a range of applications - most notably a user-friendly, multi-level game with VGA support, as well as a simulator for a basic 5-stage pipelined processor.
- Became very comfortable with core and more advanced HDL concepts such as synchronous and asynchronous combinatorial logic, generics, linked state machines using ROM, SPI and VGA standards, memory interfacing, pipeline registers, etc

Public Transport System Simulator

Autumn 2015 - Winter 2015

- Built a system from scratch, using C, to execute stochastic simulations of an on-demand public transport system, in order to allow a user (ostensibly a city planner) to simulate and optimise the system based on these results.
- System was modeled as a weighted graph, principally using the Floyd-Warshall algorithm to find shortest paths for busses based on variable metrics such as number of stops, total passengers, time that each passenger is willing to wait at a stop, etc.

PCB for Digital Speech Recording and Playback

Autumn 2015 - Spring 2016

- Designed a system to record speech to on-board RAM and then play it back through a line-out.
- Tested the circuit using SPICE simulation and sent plans to be machined to PCB by a third party, finally soldering all components for a production-ready prototype.
- Gained experience building various common circuits for the project such as digital-to-audio converter, audio amplifier, anti-aliasing filter, and automatic gain-control circuits.

Wireless Temperature Measurement System

Spring 2014 - Summer 2014

- Designed system for a temperature transmitter/receiver system using D-type flip flops, op-amps, and RC charge-discharge circuits along with a variety of common integrated circuits.
- The transmitter side included temperature measurement circuit, voltage-to-frequency converter, modulator to prepare signal for transmission, and finally a transmitter using infrared LEDs.
- Gained a good understanding of circuit design techniques, as well as an ability to use analogue design concepts in a practical application.

Resident Assistant

Autumn 2014 - Summer 2015

- Personally responsible for managing a housing block of 40 students, duties included emergency first responder and security team coordination.
- Worked in a small team across multiple sites to more effectively organise security teams as well as plan extra student networking and academic events.
- Received the Edinburgh Award for notable contributions to the student community.

LANGUAGES AND TECHNOLOGIES

- **Languages:** C, C++, Java, Verilog, OpenCL, Android, Python (some Flask), MIPS assembly, Bash, Matlab, SQL, Haskell.
- **Technologies:** Eclipse/IntelliJ/Android Studio, Vim, Linux, Target (PSPICE), Vivado, \LaTeX , MS Office.
- **Electronics experience:** Analogue and digital circuit design experience, circuit simulation using PSPICE, PCB layout design, electronics lab experience (oscilloscopes, signal generators, etc).

HOBBIES

- Interest in economics and some aspects of finance especially cryptocurrency and blockchain tech.
- Interest in music production and composition. Awarded the opportunity to conduct a 7 piece ensemble from the Scottish Chamber Orchestra in a live concert performance of an experimental soundtrack I wrote to accompany a Norman McLaren short film.
- Active basketball and tennis fan. Advanced to first place in the doubles position for the San Francisco All-City Boys tournament in my final year of high school, allowing our school team to win first overall.