

SUMMARY

Electronic Engineer with 2 years of industry experience.

1st Class Honours Masters degree in Electronic & Computer Engineering from University College Dublin.

Experienced in **Verilog, Python, C, Java, MATLAB & Linux**.

Interested primarily in digital signal processing, digital ASIC design and embedded systems.

TECHNICAL SKILLS

- **Languages/Tools:** Verilog, Python, Bash, Java, C/C++, LISP, ASM (MIPS32, 8051), MATLAB, Git, L^AT_EX.
- **Network Programming:** Experienced in TCP/IP Socket programming in Python, C & Java.
- **Concurrent Programming:** Experience in multiprocessing & multi-threaded development.
- **Operating Systems:** Professional experience developing in Linux and Windows environments.
- **Embedded Systems:** Experience in front-end Digital Design (RTL) & developing for microcontrollers such as Arduino, Micropython & ADuC841. Knowledgeable in the use of Hardware Timers/Counters, Interrupt service routines and SPI communication.
- **Digital Signal Processing:** Knowledgeable in Fourier analysis, digital filtering and digital communication theory.

PROFESSIONAL EXPERIENCE

- **Adesto, ASIC & IP Division** Dublin, Ireland
Mixed Signal Design Engineer *Jan 2020 – Present*
 - Front-End Digital Design
 - Developed software to automatically generate a Verilog implementation of a frequently redesigned block, along with its System Verilog testbench.
- **Susquehanna International Group (SIG)** Dublin, Ireland
Market Data Engineer *Sept 2018 – Nov 2019*
 - Monitoring and maintaining critical market data systems.
 - Pcap file analysis via Wireshark/tshark
 - Developed validation tools to test new software before pushing to production.
 - Implemented a system in Python & Bash to archive daily market data recordings from company colocations to a central archive.
 - Developed a set of scripts to analyse the latency of a market data system when subject to a high data rates.
 - On call work. When on call, I was the first point of contact for issues regarding SIG's market data infrastructure.
- **Intel Corporation, Internet of Things and Wearables Group** Kildare, Ireland
Physical Design Engineer Intern *Jan 2017 – Aug 2017*
 - Worked in a team designing a system in TCL to automate the design, layout & routing of a custom CMOS block.
- **University College Dublin** Dublin, Ireland
Voluntary Teaching Assistant *Sept 2015 – Nov 2015*
 - Voluntary Teaching Assistant in weekly laboratories for the engineering module, EEEN20010 Computer Engineering I: Data Structures and Algorithms through C.
- **FireEye, Inc.** Dublin, Ireland
Software Engineer Intern *May 2015 - July 2015*
 - Developed BASH scripts to facilitate and automate product testing.
 - Built a customized, kickstarted CentOS distro to include the configurations and packages necessary for running & testing a company product.

EDUCATION

- **University College Dublin** Dublin, Ireland
Master of Engineering in Electronic & Computer Engineering; 1st Class Honours *Sept 2016 – Sept 2018*
 - **GPA:** 3.84/4.2
 - **UCD Intel Masters Scholarship:** Awarded by Intel to top five students entering ME program.
- **University of California Los Angeles** Los Angeles, CA
Exchange - Electrical & Electronic Engineering; GPA: 3.18/4.0 *Jan 2016 – Jun 2016*
- **University College Dublin** Dublin, Ireland
Bachelor of Science in Electrical & Electronic Engineering; 1st Class Honours *Sept 2013 – Sept 2016*
 - **GPA:** 4.09/4.2
 - **Entrance Scholar:** Awarded to top academic achievers entering UCD from secondary school.
- **Coláiste Eoin** Dublin, Ireland
Irish Leaving Certificate; Points: 595 *Sept 2007 – Jun 2013*

PROJECTS

- **UCD Masters Research Project** Dublin, Ireland
Digital and Analog Implementations of Visible Light Communication *Sep 2017 – May 2018*
 - Project Thesis: thekegman.github.io/Thesis.pdf
 - My project proposes a real-time digital, visible light communication system employing a form of On-Off Keying modulation. It is implemented using an Arduino UNO based LED-Photodiode communication link. It can successfully transfer files between computers over a distance of up to 1.8m.
 - Software for this system was developed in C & Python 3.
- **Custom Guitar Tuner** *May 2020*
Analog amplifier & DSP running on pyboard
 - Designed an Op-amp based electric guitar amplifier, implemented on a breadboard.
 - This amplified signal is sampled using a pyboard microcontroller.
 - The pyboard runs an auto-correlation based pitch estimation algorithm I developed.
 - This algorithm estimates the fundamental frequency of the string being played.
 - LEDs are used to indicate if the string is in-tune, flat or sharp.
- **Noodle Dance Camera Filter** *Jan 2020*
Python Script
 - Python script using primarily numpy to recreate the popular Camera filter on TikTok.
 - Source: github.com/Thekegman/noodledance
- **Spotify Collab Queue** *Feb 2019*
WebApp
 - Web app with a backend implemented in Python using the Flask framework.
 - Using Spotify's API, this web app allows people to collaborate in what music is played by having them submit songs to a live queue.
 - Source: github.com/Thekegman/spotify-collab-queue
- **Nikon Trigger** *Jan 2018*
Microcontroller project
 - Program implemented for pyboard that uses an IR LED to remotely trigger a Nikon camera's shutter release.
 - The 38kHz NEC protocol used by the Nikon 'ML-L3' camera remote is replicated using PWM hardware available on pyboard.
 - Source: github.com/Thekegman/Nikon-Trigger-for-MicroPython
- **Android Apps**
Implemented in Java, available on Google Play
 - Guess That Word May 2016
 - The Maze Extravaganza 3D - *OpenGL* Aug 2013
 - The Maze Extravaganza - *36k+ downloads* July 2012
 - Developer page: <http://tiny.cc/x32oaz>