

Karl Griffin

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SUMMARY

I am currently working in IBM as a software engineer on the multi-cloud SaaS platform (MCSP) team, gaining invaluable experience in Golang, Docker, Kubernetes and cloud computing. Previously, as an IRC-funded Chemistry PhD Student, I was dedicated to developing organic memristive nanowire devices for neuromorphic computing, with three first-author papers published in top scientific journals. It was during this time that I developed a keen interest in programming and gained experience in Python and SQL. I am eager to bring my expertise and dedication to a new role and to thrive in an environment that values innovation and growth. I am also a former professional Track and Field athlete, having represented Ireland on the global stage over 800 metres from 2010 - 2019.

EDUCATION

2019 - 2023	PhD (Chemistry) at University College Dublin	
2013 - 2019	BSc (Chemistry) at University College Dublin	(1.1, GPA: 3.95/4.2)
2013	Leaving Certificate at Abbey Vocational School	(Points: 565/600)

RESEARCH EXPERIENCE

PhD Research, Supervisor: Prof. Gareth Redmond, UCD Sept 2019 - Sept 2023

- Interdisciplinary research spanning materials chemistry, semiconductor physics and engineering fields.
- Peer-leading knowledge of the global scientific and engineering endeavour to build bio-emulative electronic synapses using nothing but organic molecules induced to self-assemble as functioning memristive devices with world-first operating characteristics.

ACADEMIC PUBLICATIONS AND CONFERENCES

First-Author Publications: Sept 2023

- "A Purely Electronic Analog Memristive Device Based on a Squaraine Nanowire Mesh" in *ACS Applied Electronic Materials*
- "Charge Trapping-induced Current-voltage Hysteresis in a Squaraine Nanowire Mesh Enables Synaptic Memristive Functionality" in *Journal of Applied Physics*
- "Volatile Memristive Devices with Analog Resistive Switching Based on Self-assembled Squaraine Microtubes as Synaptic Emulators" in *ACS Applied Materials and Interfaces*

Conference Presentations:

- Nanotech Paris (May 2022): "Exploring Memristive Squaraine Microtubes: Programmable Multi-Level Memory Behaviour for Neuromorphic Computing Applications"
- 15th International Conference on Materials Chemistry (July 2021): "Memristive Squaraine Nanowire Devices for On-The-Fly Machine Learning Applications"

CONTRIBUTION

Postgraduate Representative – UCD College of Science EDI Committee Jan 2021 - Sept 2022

I served as postgraduate student rep on the UCD College of Science Equality, Diversity and Inclusion committee representing the interests and concerns of the postgraduate population. I implemented and launched several initiatives including a mentor / mentee system between senior and junior PhD students.

PROGRAMMING

Programming Languages

Python, SQL, HTML, CSS

Frameworks, Libraries and Packages

Python: Flask, Selenium, BeautifulSoup, Matplotlib, Seaborn, NumPy, Pandas

Version Control: Git / GitHub

PROJECTS

Automated Gym Booker (Browser Automation)

[Demo](#)

During COVID-19, UCD gym implemented a booking system to limit access to students. I created a bot to automate the booking process using Python (specifically Selenium) for browser automation.

Task Master (CRUD Application)

[App](#)

This is a basic 'Reminders App' built with Flask. It is a CRUD (create-read-update-delete) app and the reminders are stored in a SQLite database using SQLAlchemy. I deployed the app using Heroku.

Premier League Stats (Web Scraping, Data Analysis and Visualisation)

[More](#)

I scraped a football stats website (FotMob) using BeautifulSoup. I structured the data into a Python dictionary and subsequently a .JSON format. I accrued 26 different stat categories for the 2016/17 - 2021/2022 seasons, for every team that has played in the PL during that period. I used Pandas and Matplotlib for data analysis and visualisation purposes, saving the data to an AWS PostgreSQL database.

Web Development

[More](#)

I have built and deployed websites using HTML, CSS and Flask. For a list of / link to all, click [More](#).

ACHIEVEMENTS AND ADDITIONAL INFORMATION

Terminal Live Europe Regional	1 of 70 students selected from across Europe's top universities to compete in this AI coding competition run by Citadel (2022)
Udemy: Python	Udemy Certification - "2021 Complete Python Bootcamp: From Zero to Hero in Python" (2021)
Udemy: SQL	Udemy Certification "The Complete SQL Bootcamp 2021: Go from Zero to Hero" (2021)
IRC PhD Scholarship	'Government of Ireland Postgraduate Scholarship' from the Irish Research Council (2019)
UCD Entrance Scholarship	Awarded by UCD as recognition for high achievement in the Leaving Certificate (2013)
Ad Astra Athletics Scholarship	Awarded by UCD as recognition for high achievement in the field of athletics (2013)
Professional Athlete	From 2014 - 2017, I was a sponsored professional athlete representing New Balance on the European and World stage, specialising over 800 metres (best: 1:47.39)
Athletics Coach / Masseuse	I am qualified / certified as both an athletics coach and sports masseuse