

Connor Patrick

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EDUCATION

University of Oxford

2018 – 2022

PhD in Organic Chemistry (DPhil)

Oxford, UK

Thesis Title: “Towards Polyyne Rotaxanes and Catenanes”

- Work from PhD published in multiple research articles in peer-reviewed journals.
- Completed graduate courses in NMR, Mass Spectrometry, XRD and communication skills.

Durham University

2014 – 2018

Master in Chemistry (MChem)

First Class (Hons.)

Durham, UK

Dissertation Title: “Synthesis and spectroscopic study of lanthanide complexes”

- Work published in peer-reviewed journal.

PROFESSIONAL EXPERIENCE

Cambridge Display Technology Ltd.

August 2022 – Present

Scientist

Cambridge, UK

Technical Engineering & Automation:

- Developed Python-based computational platform integrating with SLURM job scheduler, automating DFT/TD-DFT workflows and increasing molecular screening capacity from 300 over 5 years to 1,000+ in a single year.
- Led technical migration of laboratory notebook system to Revvity Signals, developing Python scripts for REST API integration, data extraction/transformation, and database migration across development and production environments.
- Built and maintain Python applications for computational chemistry workflows, data processing, and storage.

Research & Development:

- Drive early-stage R&D of functional organic materials for Sumitomo Chemical
- Contribute to IP portfolio through patent application drafting

University of Oxford

March 2022 – June 2022

Postdoctoral Research Assistant

Oxford, UK

- A brief PostDoc spent finalising experiments from my PhD to support a future publication.
- Work published a research article in a leading peer-reviewed journal.
- Led the implementation of an electronic laboratory notebook to the research group, and later to the department.

PROJECTS

Gaussian WebView (Flask Web Application)

github.com/c-patrick/Gaussian_WebView

A full-stack web application for parsing, storing, and visualising quantum chemistry data using a Python (Flask + SQLAlchemy) backend and interactive front end (JavaScript, Chart.js) for data visualisation. Also features user management, file upload processing, RESTful API design. Designed for researchers to analyse computational data.

Computational Chemistry Pipeline (Python/Bash)

Automated multi-step DFT/TD-DFT calculation workflows with SLURM integration. Python tools for parsing Gaussian output files and extracting molecular properties and spectral simulation using Gaussian convolution of computed electronic transitions. Deployed in production environment, processing 1000+ molecules annually.

Spotify Playlist Card Generator (Python Application)

github.com/c-patrick/spotify-music-game

A Python application generating double-sided printable cards from Spotify playlists to make your own music quiz! The application integrates with Spotify API for metadata extraction and then generates a QR code with a link to the song on Spotify.

TECHNICAL SKILLS

Languages: Python, SQL, Bash, JavaScript

Frameworks & Libraries: Flask, SQLAlchemy, Chart.js, DataTables

Databases: PostgreSQL, MySQL, SQLite

Tools: REST APIs, Postman, VMware/Xen virtualisation

DevOps & Infrastructure: Docker, Docker Compose, Git (version control), Linux (RHEL), SLURM

PROFESSIONAL COURSES AND CERTIFICATIONS

100 Days of Code: The Complete Python Pro Bootcamp (2025)

Online Course – Udemy (Dr Angela Yu)

Introduction to Cheminformatics and Medicinal Chemistry (2023)

Online Course – Udemy (Dr Guilherme Matos Passarini)

OTHER SKILLS AND INTERESTS

Professional Skills: Agile project delivery; cross-functional collaboration; technical communication; problem-solving; stakeholder management

Interests: Homelab enthusiast (experimenting with Docker, virtualisation, and self-hosted services) and enjoy developing my own simple apps or working on small projects (see my portfolio and GitHub). I also enjoy 3D modelling/printing, good food, cooking and cycling.