

Oisín Davey

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Programming Awards

Represented Team Ireland for three consecutive years in the **International Olympiad of Informatics**, winning a **bronze medal** in 2021 in Singapore, thereby earning scholarships for the universities of Waterloo and Singapore. Placed **1st in the All-Ireland Collegiate Programming contest** in 2023. Won the UKIEPC and the All-Ireland Programming Olympiad.

Skills

- **Programming language acquisition:** Comfortable and practiced adapting to languages to suit the needs of a project; incorporated **C, C++, Python, Go**, Typescript, C#, and CSS in major projects; used Java, HTML and Haskell recreationally.
- **Tutoring experience:** Seasoned at teaching small groups/individuals in mathematics, having been involved in leaving cert tutelage and having been **contracted for UCC** twice to train our international Olympiad programming team.
- **Pattern spotting:** Most satisfied when **uncovering hidden structures in a task/problem**: exploitation thereof enables **optimisation and novel perspectives**. This skill lies at the core of all analytical problem solving.

Education

Maynooth University | Kildare, Ireland
BSc **Theoretical Physics & Pure Mathematics**

- **91.4%** GPA in 1st year, **93.0%** GPA in 2nd year.
- Awarded **all 6 academic prizes available in physics & maths**. E.g., The Monsignor Spelman Prize for **best maths & mathematical physics results** in second year.
- **Co-Founder of PhysChem** society, Server admin of CSsoc, and Puzzle Master for Maths.

Experience

Research Fellow | Tyndall - Cork | June 2023 – September 2023

- Produced original **C++ and Python model** of the spectra of quantum-confined stark effect based electro-absorption modulators, based on Elliott theory.
- Using time **complexity analysis**, I optimised the efficiency (From cubic to log-linear) of the program using a krylov-subspace eigenvector algorithm, now computing 4.8 wavefunctions per second, each with 100,001 nodes.
- Rephrased a component of the model as a discrete convolution, enabling further improvement in speed using fast fourier transforms.

Software Engineer | Farmeye - Athlone | June 2022 – September 2022

- Automated acquisition and visualisation of meteorological data for an important client, through ECMWF's **python API** and the QGIS geographic visualisation software.
- Development of portable GNSS kits to assign precise location data to soil samples as they are taken, running on **microcontrollers** using the real-time-kinematics library RTKLIB.
- Created a **prototype** digital soil penetrometer to determine bulk density of soil without lab equipment.

Maths Tutor & Department Head | Educandi - Sligo | June 2021 – September 2021

- Tutored leaving cert maths one to one with a holistic focus, setting students up to wholly understand the structures with which they deal.
- **Managed a team** of 6 tutors for a material creation project, totaling 500 pages of high-quality notes and answered questions for students to learn from.