# 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:** *Seasoned at teaching small groups/individuals in mathematics, having been involved in leaving cert tutelage and having been* **contracted by UCC** *twice to train our international* **Programming Olympiad** *team.* **Employed by Maynooth University** *as an* **academic tutor** *for 1st science, where I also work to train the national* **Maths Olympiad** *competitors. As a leaving cert tutor with Educandi, I* **managed a team of 6** *for a material creation project, totaling over 500 pages of high-quality notes still in use today.*
- **Pattern spotting:** *Most satisfied when* **uncovering hidden structures in a task**/*problem: exploitation thereof enables* **optimisation and novel perspectives**, *applicable to nearly 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,* **91.2%** *GPA in term 1 of 3rd 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 & Events officer** *of PhysChem society, Events officer &* **Problem Setter** *of Computer Science society, and Events Officer &* **Puzzle Master** *for Maths society.*

## Experience

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

- *Produced original* **C++/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.*