

# MATTHEW CONWAY

DUBLIN, IRELAND | DUAL IRISH-US CITIZEN | mconway1@tcd.ie | LinkedIn | GitHub | My Website

## EDUCATION

### TRINITY COLLEGE DUBLIN

B.A. (Mod) Theoretical Physics - Penultimate year

**Results:** 1st class honours maintained each year.

**Coursework:** Quantum Mechanics, Statistical Physics, Classical Field Theory, Chaos & Complexity, Condensed Matter, Computational Physics, Linear Algebra, Multivariable Calculus, Statistics and Probability, Fourier Analysis, ODEs, Experimental Physics Laboratories.

**Extracurriculars:** Engaged in many student led initiatives such as the Theoretical Physics Student Association, Mathematics Society, Plancks International Physics Competition, Cards Society (poker), Surf Society and Jazz Society.

DUBLIN, IRELAND

Expected May 2027

### SUTTON PARK SCHOOL

Irish Leaving Cert

DUBLIN, IRELAND

Graduated June 2022

**Results:** 601/625, top 94th percentile nationally.

**Coursework:** Applied Mathematics(H1), Mathematics(H1), Computer Science(H1), Physics(H1), Design Communication Graphics(H1), English(H2) and Spanish(H2).

**Extracurriculars:** Chess Club, Irish Maths Olympiad competitor and Self Help Africa Fundraiser.

## EXPERIENCE

### TRINITY COLLEGE DUBLIN

Computational Physics Intern, Hamilton Mathematics Institute

DUBLIN, IRELAND

May 2025 – June 2025

- Awarded stipend for a three person research team to conduct a review of Markov Chain Monte Carlo integration methods under the supervision of Prof. Stefan Sint.
- Developed and benchmarked MCMC integration methods (importance sampling, Metropolis- Hastings, Gibbs, Hybrid MCMC + KDE).
- Quantified uncertainty and tested methods on a variety of finite functions, expanded this testing into multidimensional integrals observing how the uncertainty and computational burden scales with dimensions.
- Recorded the various integration schemes developed, simulated experiments conducted and results found, then formulated our work into our research [paper](#).

### YOUR WORLD HEALTHCARE - Gap year to help finance university studies.

Recruitment Consultant

DUBLIN, IRELAND

November 2022 – June 2023

- Managed highly volatile client demand (hospitals, ID centers, CAMHS, etc.) by forecasting shift requirements, recruiting staff in targeted regions, and building contingency plans to ensure 100% coverage; minimised revenue loss by overlapping recruitment areas to hedge against demand uncertainty.
- Launched and scaled the first Cork-based team from 0 to 12 staff within 3 months, brought on 3 new healthcare providers as clients, and generated consistent weekly placements for our staff as a result.
- Expanded operations beyond Dublin office scope and generated new revenue streams in places which had previously been neglected.

### SELF-EMPLOYED

Private Maths Tutor

DUBLIN, IRELAND

September 2022 – Ongoing

- Delivered tailored Maths tutoring to over 30 secondary students, with consistent increases in student grades reflected.

## PROJECTS

### TRINITY FLOATING OFFSHORE WIND

Structural Design Lead

DUBLIN, IRELAND

September 2024 – Ongoing

- Won 1st place in power generation as part of Floating Wind Challenge, an intervarsity competition comprised of teams from University of Tokyo, National University of Singapore, Ecole de Ponts, Nova College, NL and more.
- Developed novel floating platform design consisting of a retractable keel mounted to a Tri-Floater base via an in-house bearing design, decoupling turbine from roll, yaw, and pitch.
- Validated structural integrity and optimised power generation efficiency through testing at LIR National Ocean Test Facility, Cork. Our project design and large scale development proposal for offshore wind in Ireland can be found in this [report](#).

### AGENT-BASED MODEL OF BEE/FLORA DYNAMICS

Student Led Research Project

DUBLIN, IRELAND

January 2025 – May 2025

- Simulated population dynamics of pollinators and flora under a variety of exogenous shocks representing different types of urbanisation.
- Observed self-reinforcing cycles between both populations, varied distribution of outcomes for pollinator and plant populations which highly depended on initial conditions and particular form of urbanisation (urban sprawl, green spaces, large scale concrete developments).
- Conferred with pollinator and agent based modelling specialists in order to form our inferences and suggestions in relation to urban planning policy and its effects on our ecosystem. Our final [report](#) outlined our research, modelling methods, and conclusions.

**PROGRAMMING:** Python, L<sup>A</sup>T<sub>E</sub>X, SolidWorks

**INTERESTS:** Guitar, Surfing, Music, Renewable Energy

## REFERENCES

**Dr. Chaolun Wu** - Teaching Fellow, School of Mathematics, Trinity College Dublin.

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**Dr. Craig Meskell** - Associate Professor, Department of Mechanical and Manufacturing Engineering, Trinity College Dublin.

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