

Oisín Carroll

SOFTWARE ENGINEER · MACHINE LEARNING SPECIALIST

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Summary

A CS masters graduand from Trinity College Dublin, specializing in machine learning. After learning to program at an early age, he's spent the last 10 years working on projects ranging from AI to esolangs to game development. Loves nothing more than being challenged and learning new things, and isn't afraid to work hard to get there.

When he's not at a computer, enjoys juggling (especially passing patterns), table tennis, home-brewing, and cooking.

Skills

Languages	Excellent: Python, C#, Javascript
	Good: C++, C, Rust, Java, Prolog, Haskell
	Basic: SQL, Lua, Lisp, Objective-C, MATLAB, LaTeX
Machine Learning	Excellent: numpy, pandas, Scikit-Learn, Jupyter/IPython Notebooks
	Good: Tensorflow (and tf-lite), Keras, huggingface, spaCy, xgboost, Docker, OpenCV
	Basic: OpenAI-Gym/Universe, DLib.
Web Development	Good: ASP.NET, Python-Flask, Bootstrap
	Basic: HTML5-Canvas, Node.js, React
Misc. Development	Excellent: Algorithms & Data Structures, Git, Program Architecture
	Good: AWS Stack (EC2, S3, lambda, Documentdb), Functional Programming, Computer Graphics & Shaders, Parallel Programming/Algorithms, MongoDB.

Work Experience

Self Employed/ Contractor Work

Many (Remote)

FREELANCE GAME DEVELOPMENT CONSULTING

2017 - Present

- Researched and developed automated toxicity detection for Doge Labs VR (2023)
- Wrote hockey AI (bots) for Slapshot Rebound by Oddshot Games (Unity3D, Python) (2022-23)
- Wrote tooling to solve rendering issues for Something Classic Games on their title My Familiar (Unity, C++) (2022)
- Worked on a novel water shader for Adaptory by Stormcloak Games (OpenGL, Python) (2022)
- Developed stylized shaders and a spline-based house building system for a TBA title (Unity, OpenGL) (2022)
- Created novel shaders and raymarching-based effects for Silicone Synapse (OpenGL, Unity, Blender) (2017)

Adapt Centre, Trinity College Dublin

Dublin, Ireland

ANALYST PROGRAMMER/ RESEARCHER

Nov. 2020 - Present

- Currently technical coordinator for VIGILANT, responsible for scoping and designing the system, as well as technical decisions around architecture, deployment, security and evaluation.
- Worked as a researcher and engineer on a variety of industry and grant-funded research projects.
- Developed, trained and deployed novel solutions for automated detection of fake news, relation extraction, human understanding of NLP models and more.
- Worked on scaleable ETL and data processing pipelines using the AWS stack (EC2, S3, lambda, Documentdb), datasketch. Used databases including Elasticsearch, MongoDB and GraphDB.

Syze.ai

Dublin, Ireland

COFOUNDER & CTO

Jun. 2017 - Jul. 2019

- Developed an algorithm that can, given 2 photos of a person — front and side — reconstruct a 3D mesh of them with all measurements +2cm. This works well even if they're not wearing tight fitting clothing.
- Pitched and met with clients on behalf of the company, including large corporations such as the Arcadia group and eShakti.com.
- Co-wrote funding proposals and other documentation to communicate the company's tech with technical and non-technical people alike.
- Raised €320k in Enterprise Ireland funding, during which time Syze was a research project in the Adapt Centre.
- Used tensorflow/keras, tf-lite, openCV, pandas, docker, scikit learn, jupyter. Python/c++.

Virtual Access

Dublin, Ireland

SOFTWARE DEVELOPER

Jun. 2016 - Jun. 2017

- Worked on a configuration system for routers, primarily focusing on the front end UI. (C#, ASP.NET, jQuery, and Bootstrap)
- Worked in a team of 3 to replace the legacy system that was becoming costly to maintain.

Honours & Awards

PROGRAMMING COMPETITIONS

2018	86th (1st in Ireland) , Google Hashcode, this year was to create routes for self-driving taxis.	Worldwide
2017	3rd Place , Huawei 3xD Coding Challenge, challenge to build AI for social good.	Dublin, Ireland
2016	Finalist, Top-8 , Man AHL Coder Prize, build an AI to play a board-game called Hexplode.	London, UK
2015&6	Winner , 1st in Ireland both years in UKIEPC, an algorithmic programming competition.	Dublin, Ireland

OTHER

2023	Gala Serious Games Conference - Best Game, Business Category , Prize for Best Game in the Business Category by attendee vote for travel - a game of getting from A to B.	Dublin, Ireland
2020	TCD M.A.I. Stream Prize - Computer Engineering , Prize for obtaining the highest aggregate mark among the graduating class of 2020.	Dublin, Ireland
2017	Trinity Foundation Scholarship , The highest category of scholar awarded, given to the top 7-10 students across all fields and courses in the college each year for excellence in a set of optional exams. This affords free accommodation and waved fees during the student's time in college.	Dublin, Ireland
2017	ARUP Innovation Award , Received the award for 'Bamboocherie', a project which developed a sustainable and cheap way of treating bamboo for use in building projects in Nepal. Used old bicycle inner tubes, pop bottles, and tubing to create a system capable of chemically treating bamboo, increasing it's lifespan by 3-5 times and it's strength 10-15%.	Dublin, Ireland

Education

SCHOOL

Trinity College, School of Computer Science

Dublin, Ireland

COMPUTER ENGINEERING

2015 - 2020

- Graduated with honours, and was awarded MAI Stream Prize in Computer Engineering for an overall final grade of 81% — the highest in the year.
- Studied computer vision, graphics, and deep learning, as well as math modules covering vector spaces, projection and advanced calculus.
- Final year dissertation proposes a new method for creating finite-group equivariant neural networks.

Extracurricular Projects

2023-Now	travel , A daily map game that challenges players to navigate between two countries. As of Nov 2023 there are 19 playable maps which are available in 15+ languages. The games are played over 2 million times each month. Javascript, Bootstrap, Python, Geopandas, Openstreetmap.
2019-Now	imois.in , A personal site where I post about miscellaneous maths and programming projects. Including replicating research in the <u>Hadwinger-Nelson problem</u> , <u>procedural animation</u> , <u>game theory</u> , <u>games</u> , <u>neural networks</u> , and <u>more</u> .
2016-Now	Open Source , Contributing to several open source projects, including Spacemacs (emacs distribution) and the Godot game engine.
2016-Now	Is the Lizard a Wizard? , A puzzle game centered around a procedurally animated lizard moving over 2d and 3d geometry. Puzzles are based on M.C. Escher drawings and other isometric illusions. C#/Unity, (Prototypes in c++/opencl, rust/vulkan and Godot)
2016-Now	Online programming problems , Solved over a hundred of the online maths/ programming puzzles at projecteuler.net, completed google foobar, and solved many more problems on open.kattis.com. Python, c++, Haskell, Math.
2018	Fake News , Browser plugin for Facebook which flags articles which are likely to be poor quality journalism based on the way these articles attempt to incite a reaction from their users. Tensorflow/webkit.
2017	BrainFast , One of the fastest interpreters for the BrainF*ck esolang. An experiment in trying to write very optimized code. C++.
2011	Siteswapper , My first app; a juggling pattern visualiser and generator for IOS. Allows the user to type in patterns using juggling notation 'siteswap', view the pattern and experiment with different throws. Obj-c, cocos2d.