

# Cathal Breathnach

MEDICAL STUDENT, ELECTRONIC & COMPUTER ENGINEER

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A current Medical Student at NUI Galway. Previously completed a degree in Electronic and Computer Engineering. Well organised with a strong attention to detail and the ability to solve complex problems as part of a team. Has the ability to learn quickly and efficiently to a high performance level. Interested in pursuing a career in clinical medicine, but also with an interest in emerging medical technology.

## Education

### National University of Ireland, Galway

BACHELOR OF MEDICINE (M.B. B.CH. B.A.O. DEGREE)

Galway, Ireland

2019 - PRESENT

### National University of Ireland, Galway

BACHELOR OF ENGINEERING (ELECTRONIC & COMPUTER)

Galway, Ireland

2014 - 2018

- Overall Degree Result: 84.95%, First Class Honours. Finished Top of Class.
- Studied a wide variety of hardware and software modules.

### National University of Ireland, Galway

BACHELOR OF SCIENCE (FIRST YEAR ONLY)

Galway, Ireland

2013 - 2014

- Overall First Year Result: 95.75%, First Class Honours.
- Subjects Studied: Mathematics, Physics, Chemistry, Applied Mathematics.

### St. Joseph's College "The Bish"

LEAVING CERTIFICATE

Galway, Ireland

2008 - 2013

- Overall result: 625 points (Maximum points).
- Subjects Studied: English, Irish, Mathematics, French, Physics, Chemistry, Applied Mathematics.

## Projects

### Advanced Techniques for Particle Swarm Optimisation

FINAL YEAR ENGINEERING PROJECT

- Analysed and researched variations of an evolutionary algorithm to implement new variants.
- Developed a Java simulator for comprehensive testing and the collection of large amounts of data.

### Logistic Regression Algorithm Implementation

MACHINE LEARNING ASSIGNMENT PROJECT

- Developed the logistic regression algorithm from scratch using Java, implemented for the user with a GUI interface.

### Bluetooth-Enabled Electro-mechanical Xylophone using Arduino

SECOND YEAR MICROPROCESSORS SYSTEMS ENGINEERING PROJECT

- The creation of an electronic xylophone wirelessly controlled by a user worn glove. Featured record and playback functionality.

## Experience

### Genesys AI Group

SOFTWARE ENGINEER

Galway, Ireland

July 2018 - August 2019

- Worked as a member of the Data Science Group, with a focus on Data and Machine Learning Engineering.
- Responsible for the running of Data Science experiments, utilising Spark.
- Responsible for various components in building a scalable production ML service using Python and some Scala.
- Worked on an agile team, using technologies and platforms including AWS, Git, Databricks, Jupyter Notebooks.

### Aerogen

ELECTRONIC & COMPUTER ENGINEERING INTERN

Galway, Ireland

January 2017 - August 2017

- Intern role in an electronics R&D department.
- Responsible for product testing, analysing and collecting results for reports.
- Programmed micro-controllers and monitored power consumption over various tests.

## National University of Ireland, Galway

SENIOR STUDENT AMBASSADOR

Galway, Ireland

2014 - PRESENT

- Lead ambassador role, helping with organisation of other ambassadors and of events.
- Representing and promoting the university, interacting with prospective students and academic guests.

## NUIG Mountaineering Club

CLUB CAPTAIN, MAAMTURKS CHALLENGE CHAIRPERSON, COMMITTEE ADVISOR

Galway, Ireland

2014 - 2019

- Captain of the club for 2014-2015. Overseeing the entire running of the largest university club.
- Involved with the organisation of the Maamturks Challenge since 2013, one of Ireland's largest hillwalking events.
- Advisor to the club committee for 2017-2018.

## 1st Galway St. Joseph's Scout Group

SCOUT LEADER, ROVER SCOUT

Galway, Ireland

2014 - PRESENT

- Assisting in planning and implementing an exciting and safe programme for children aged 12-15.
- A member of the national team for the Irish Rover Network for third level groups from 2015 - 2017.

## NUIG Rover Society

AUDITOR, TREASURER, FOUNDING MEMBER, PROJECT MANAGER

Galway, Ireland

2014 - 2017

- Treasurer of the university Scout society for 2014 - 2015. Auditor for 2015-2016, overseeing all aspects of the society.
- Team Lead for the organisation a national inter-varsity event in 2017, named best national Rover event for that year.

## National University of Ireland, Galway

CÉIM LEADER

Galway, Ireland

2015 - 2016

- Leader for a peer-assisted learning (PAL or PASS) scheme run for first year engineering students.

## River Deep Mountain High

SALES ASSISTANT

Galway, Ireland

Summer 2015, 2016

## Achievements

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- 2018 **David Gilmore Memorial Award**, NUI Galway & ExOrdo. Highest mark in graduating class.
- 2018 **University Scholar**, NUI Galway. Awarded for high results. Also awarded in 2017, 2016, 2015.
- 2015 **Club Captain of the Year**, NUI Galway. Chosen amongst all captains from over 50 clubs.
- 2013 **Entrance Scholar**, NUI Galway. Awarded based upon Leaving Certificate results.
- 2013 **Brother Angelus Award - Student of the Year for Academic Endeavor**, St. Joseph's College.
- 2012 **Chief Scout Award**, Scouting Ireland. One of the highest awards attainable for youth members.

## Skills

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**Programming:** Most familiar with the Java and Python languages. Have written code for production systems and experiments.

**Embedded Systems:** Have studied systems and processor architecture. Written C code for Microchip and Arduino MCUs.

**Electronics:** Knowledge of analogue and digital electronics, signals and communication systems, chip processes, VHDL.

**Web Technology:** Some knowledge of HTML & CSS, SQL and other CMS systems and web system administration.

**Applications:** Experience using MATLAB, LabView, LabWindows, Microsoft Office applications and LaTeX document editors.

**Teamwork:** Have worked on collaborative projects in a professional context, through university and through other past-times.

**Communication:** Excellent oral and written communication skills.

**Problem Solving:** Have a proven ability to take a structured and logical approach to problems.

**Leadership:** A determined leader. Able to manage people and their abilities effectively.

**Languages:** Have a conversational standard of French and Irish.

## Hobbies & Interests

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**Technology:** Self taught programming for different applications. Websites and app development.

**Mountaineering:** A regular hiker and climber. Have travelled extensively in Ireland and abroad.

**Running, Cycling, Swimming:** For fitness and for trips. Have taken part in several events.

**Scouting:** Have been involved in the Scout movement since the age of 11. An active member.

**Music:** Have played the piano for over 8 years to Grade 7 level.