

# Cathal Breathnach

FINAL YEAR ELECTRONIC & COMPUTER ENGINEERING STUDENT

66A Hawthorn Place, Clybaun Road, Galway, Ireland.

☎ +353 (0) 83 3114989 | ✉ breathnach.cathal@gmail.com | 🌐 www.cathalbreathnach.com | 📱 cbreathnach | 📺 cathalbreathnach

A high achieving and innovative final year undergraduate Electronic and Computer Engineering student seeking exciting graduate opportunities. Completing course work in May 2018. 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 applying experience gained to solving relevant real-world problems by implementing innovative engineering approaches. A particular interest in designing practical solutions using artificial intelligence and next-generation technologies.

## Education

### National University of Ireland, Galway

Galway, Ireland

BACHELOR OF ENGINEERING (ELECTRONIC & COMPUTER)

2014 - PRESENT

- Studied a wide variety of hardware and software modules.
- Overall Third Year Result: 86.2%, First Class Honours
- Overall Second Year Result: 88.58%, First Class Honours
- Overall First Year Result: 89.90%, First Class Honours

### National University of Ireland, Galway

Galway, Ireland

BACHELOR OF SCIENCE (FIRST YEAR ONLY)

2013 - 2014

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

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

Galway, Ireland

LEAVING CERTIFICATE

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 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.
- Analysed results to determine statistical improvements in performance.

### 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

### Aerogen

Galway, Ireland

ELECTRONIC & COMPUTER ENGINEERING INTERN

January 2017 - August 2017

- Student role in the electronic R&D department of the industry leader for high performance aerosol drug delivery.
- Responsible for product testing, analysing and collecting results for reports.
- Programmed micro-controllers and monitored power consumption over various tests.
- Created a C# GUI to interact with a micro-controller device from a tablet. Investigated different .NET libraries available for use.

### National University of Ireland, Galway

Galway, Ireland

STUDENT AMBASSADOR

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

Galway, Ireland

CLUB CAPTAIN, MAAMTURKS CHALLENGE CHAIRPERSON, COMMITTEE ADVISOR

2014 - PRESENT

- 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

Galway, Ireland

SCOUT LEADER, ROVER SCOUT

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.
- Chosen as one of ten Rover Scouts to represent Ireland on a cultural exchange to Japan in 2016.
- Set up and administer the group website and email system.

## NUIG Rover Society

Galway, Ireland

AUDITOR, TREASURER, FOUNDING MEMBER, PROJECT MANGER

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

Galway, Ireland

CÉIM LEADER

2015 - 2016

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

## River Deep Mountain High

Galway, Ireland

SALES ASSISTANT

Summer 2015, 2016

## Rusheen Bay Windsurfing

Galway, Ireland

WATER SPORT INSTRUCTOR

Summer 2012, 2013, 2014

## Achievements

---

- 2018 **University Scholar**, NUI Galway. Awarded for high results. Also awarded in 2017, 2016, 2015, 2014.
- 2015 **Explorer Belt Award**, Scouting Ireland. One of the highest awards attainable for Rover Scouts.
- 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

---

<b>Java</b>	Most familiar language. Have studied many aspects, created programmes and GUIs. Experience with Android.
<b>Python</b>	Have used the Scikit-learn libraries for machine learning on various data sets.
<b>Embedded</b>	Have studied embedded system and processor architecture. Written C code for Microchip and Arduino MCUs.
<b>Chip Design</b>	Have studied chip processes and have knowledge of VHDL and simulation environments for analysing systems.
<b>Electronics</b>	Good knowledge of analogue and digital electronics, electromagnetics, signals and communication systems.
<b>Web</b>	Have knowlegde of HTML & CSS, SQL and other CMS systems. Have also used a Firebase JSON database.
<b>Applications</b>	Experience using MATLAB, LabView, LabWindows, Microsoft Office applications and LaTeX document editors.
<b>Teamwork</b>	Have worked on several group projects through university and through other past-times.
<b>Communication</b>	Excellent oral and written communication skills.
<b>Problem Solving</b>	Have a proven ability to take a structured and logical approach to problems.
<b>Leadership</b>	A determined leader and able to manage people and their abilities effectively.
<b>Languages</b>	Have a conversational standard of French and Irish.

## Hobbies & Interests

---

<b>Technology</b>	Self taught programming for different applications. Websites and app development.
<b>Mountaineering</b>	A regular hiker and climber. Have travelled extensively in Ireland and abroad.
<b>Running</b>	Have been running for a number of years, have taken part in several events.
<b>Scouting</b>	Have been involved in the Scout movement since the age of 11. An active member.
<b>Music</b>	Have played the piano for over 8 years to Grade 7 level.