

Cathal O'Callaghan

2nd Year Computer Science and Information Technology Student

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Experience

MLH Fellowship Intern (remote)

Python / Golang

June - August 2020

- Contributed full time to open source projects within a group of students, under the mentorship of a software engineer.
- Mainly worked on click (python cli), howdoi (python cli search engine) and beego (golang web framework). Developed a love for knocking issues off tools that I use and giving back to the generous open source community
- Pair programmed regularly with other students to reproduce bugs and research specifications before adding new features.
- Levelled up my git skills significantly, delivered a technical presentation of my real life based betting app detailing the interesting implementations of various features

Personal Projects

News article web scraper

Python, Golang

Wrote a scraper to gather news articles from a handful of news websites daily for later data analysis. I plan on using this dataset as an intro to machine learning. Later refactored the script into golang which improved average runtime from 12 to 2 seconds.

ZipTab chrome extension

Javascript

Developed a chrome extension to manage online browsing workspaces. The extension saves a snapshot of all active tabs for later use and syncs data across all chrome browsers that a user is signed into. Instead of leaving windows open to save links users can save their browsing sessions to come back to at a later date.

Using an OCR to cheat memory tests

Python

Combined Google's tesseract OCR and python for a script capable of insanely high scores on an online verbal memory test hosted by humanbenchmark. This script can beat any human in 20 seconds with 100% accuracy.

College Projects

Real life based betting app - Awarded best overall group project

MongoDB, NodeJS, Go, React (MERN stack)

- Implemented complete user auth and management system which included OAuth through Google, Github and Steam, password reset and email verification functionality. Passwords are checked against a DB of common leaked passwords to ensure our users use secure passwords.
- Acted a scrum leader in our team's weekly sprints to coordinate our work, presented a demo of our project and liaised with our lecturer on the progression of the app.
- Deployed to AWS and maintained the app to ensure performance and functionality had not been degraded at any point due to unscheduled downtime.
- Introduced and integrated continuous development through TravisCI to monitor the build state of each iteration of the project. Wrote 90 unit tests to ensure a high standard of quality as the project grew in size.
- Integrated Stripe for payments to allow users to purchase more coins on the app if they wished to do so.
- Constructed an email service with golang using the Gmail API for email verification, password reset, purchase receipt and news-letter functionality. This service is also used by backend scripts to report failures in background tasks to the team to ensure they do not fail silently.

Achievements

Recognition at a Google algorithms workshop

After being accepted based on my outstanding GitHub, I attended a Google algorithms workshop at their Dublin offices where we completed an algorithms worksheet. From this I was offered an interview for their summer STEP internship based on my performance.

3rd place in NUIG's hub for Google Hashcode 2020

My team of four 2nd year CS&IT students competed in Google's 2020 hashcode and placed 3rd out of all teams competing in NUIG's hub. Hashcode is a global programming competition open to anyone which takes the form of a problem statement being given and then having 4 hours to submit your optimal solution to the problem.

First place hackathon project - MLH fellowship halfway hackathon

I came up with the idea of creating a portfolio generator for the work done during the MLH fellowship for future students and our team came first place in the best showcase/portfolio project category. MLH will use the project officially for students next year. Powered by golang, graphql, nextjs and GCP.

Summary

A motivated and diligent individual with a keen interest in the ever-expanding world of technology. Love the rewards that programming has to offer and it's never-ending challenges. Focused on applying my programming knowledge to convert abstract, real world problems into programming based solutions.

Education

BSc Computer Science & Information Technology

NUI Galway

Graduating in 2022

Achieved and maintaining a 1:1 grade level. A grades obtained in C, Object orientated programming, OOP: data structures and algorithms, web development, network & data communications, discrete mathematics and database systems.

General Skills

Linux based systems: Ubuntu and Raspbian

Computer hardware: Built my own computer at age 13

Database systems: Academic experience with SQL

Frameworks and tools: GraphQL, AWS, GCP, git, i3wm

Volunteering

NUIG CompSoc Ordinary Committee Member

I'm on the 2019/20 compsoc committee. I help out with committee work and am learning a bit about the operation and maintenance of our servers on the side.

OS Contributions

I have contributed to many open source projects such as:

Comma10k: CommaAI's future image segnet powering their self driving car modules

Beego: High performance golang web framework

Click: Python command line interface toolkit

GitHub-dark-theme: Chrome extension to enable darkmode on GitHub.com

Language Experience

100% is my most well known language

Python

Javascript

Go

Java

C

Interests

Music

I am an avid techno fan. When not listening to techno I like to practice DJ'ing and occasionally upload my mixes online.

Drones

Have built two custom quadcopters since I gained interest in the hobby and love everything that comes with the constant maintenance and flying of them. I have learned more than I could've imagined from the electronics work that I've had to do after many crashes.

References

Dr. Enda Barrett - Lecturer in Computer Science

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