

Cathal O'Callaghan

3rd 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 a range of open source projects within a group of students, under the mentorship of a software engineer.
- Mainly worked on click (python cli toolkit) and beego (golang web framework).
- Gave technical support on issue boards and delivered general quality of life improvements to click (325,000 repositories dependant) and beego (used most notably by Huawei enterprise cloud).
- Pair programmed regularly with other students to reproduce bugs and researched specifications before adding new features.
- Leveled up my git skills significantly through constant collaboration on open source projects while adhering to the many contributing standards set by project maintainers.

Personal Projects

News article web scraper

github.com/lamCathal/NewsWebsiteScraping

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

github.com/lamCathal/zipTab

Javascript

Developed a chrome extension to manage online browsing workspaces. ZipTab saves a snapshot of all active tabs for later use and syncs data across all chrome browsers that a user is signed into.

Using an OCR to cheat memory tests

github.com/lamCathal/HumanBenchMarkHelper

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. Wrote a blog post on dev.to to teach beginners how to build the project.

College Projects

Real life based betting app

Awarded best overall group project

MongoDB, NodeJS, Go, Docker, React (MERN stack)

github.com/ReqApp/Req

My role: Project lead/back-end infrastructure/front-end UI

- 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 database 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.
- Dockerized and 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 integration 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. This enabled us to catch feature breaking additions before being committed.
- Integrated Stripe for payments to allow users to purchase more coins on the app.
- 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 accept 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 global hashcode programming competition and placed 3rd out of all teams competing in NUIG's hub.

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 all students in the future iterations of the fellowship. Powered by golang, graphql, nextjs and GCP.

First place software engineering group project

I lead a team of four students during the development of our app Req, a real life based betting app. Our project took first place in the competition for best group project out of our class of 2nd year CS&IT students.

Summary

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.

Mainly interested in writing reliable and robust code to power the infrastructure behind systems.

Education

BSc Computer Science & Information Technology

National University of Ireland Galway

September 2018 - June 2022 (Expected)

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, software engineering and database systems.

Volunteering

NUIG CompSoc Ordinary Committee Member

I was on the 2019/20 compsoc committee. I helped out with committee work and learned 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:

github.com/poychang/github-dark-theme

github.com/commaai/comma10k

github.com/astaxie/beego

github.com/pallets/click

Skills

Languages

Golang, Python, Javascript, C, Java, CSS, HTML

Frameworks/tools

Git, Linux, Raspberry Pi, NodeJS, Docker, GraphQL, AWS, MySQL, MongoDB, Mux, Express

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.