Francis Gurr

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Summary

I am a recent Electronic Engineering (MEng) graduate from Durham University. My main interests lie in software development and machine learning.

I enjoy solving complex problems both independently and as part of a team. I am a fast learner and enjoy widening my skill set by challenging myself with personal projects. I have experience working on large long term projects and can work well in a range of team dynamics. Whilst completing projects I am highly motivated, organised and strive to ensure all my work is of a high standard. These attributes have led me to receive a first in every programming assignment throughout my degree.

In my spare time I am a keen rock climber, mountain unicyclist and occasional juggler.

Skills

Most experience with:

Java | Python | C | Javascript | MatLab | Linux | CNNs | LaTeX | German

Experience with:

C++ | React | Express.js | Node.js | SQL | PHP | Electronics | Graphic Design

References

Dr Stefano Giani

Assistant Professor
Durham University
stefano.giani@durham.ac.uk

Colin Reekie

Head of Development
Q-Free ASA
colin.reekie@q-free.com

Experience

Masters Project - 1st Class (80%) *Durham University* **2019 - 2020**

- Supported by Q-Free ASA, a global leader in intelligent transportation systems (ITS).
- The project proposed using road-side video cameras as a non-intrusive alternative to current ITS and infomobility systems.
- Video images were used to determine the speed of vehicles.
- A neural network (YOLOv3) was used for object detection with an accuracy of 98% mAP.
- A Kalman filter was used to track the vehicles.
- I developed Python software to calibrate the camera using road markings, and used C++ to calculate the vehicle speeds.
- The project proved successful and was able to provide vehicle speeds in real-time from road-side camera footage.

R&D Intern *Q-Free ASA, Bristol* **Jul 2019 - Sep 2019**

- The continuation of a successful third year design project for which I was project manager.
- Designed and developed an innovative prototype for a non-intrusive roadside detection system for counting and classifing vehicles.
- I developed software in C to generate 2D side profiles of vehicles using data from LiDAR and radar sensors.

Summer Project *Durham University, Maths Dept.* **Jun 2018 - Feb 2019**

- Co-author of ancillary Python software for an academic paper entitled *Quartic Graphs that are Bakry-Émery Curvature Sharp*.
- I jointly developed a computer classification algorithm to recursively generate all radius two local configurations of quartic graphs.
- Published in Discrete Mathematics **343**(3), DOI: 10.1016/j.disc.2019.111767.

Education

MEng Electronic Engineering - 2:1 *Durham University* **2015 - 2020**

- Took a year out following bereavement as an exam only student.

MChem Chemistry *Durham University* **2014 - 2015**

- Switched course after year one.

A Levels *Bournemouth Grammar School* **2013 - 2014**

- A* Chemistry, A Maths, A Physics, A German.

Personal Projects

Pathfinding Visualiser **2021 - Ongoing**

- Currently working on a full stack web application to visually depict pathfinding algorithms in action with real world map data.
- Skills used: Javascript, React, Express.js, Node.js, MySQL.

Sudoku Solver **Summer 2017**

- Created a JavaFX app to solve Sudoku problems using a recursive backtracking algorithm.
- Skills used: Java, XML.