

# Francis Gurr

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in 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 MatLab LaTeX

CNNs Linux Excel German

Some experience with:

Javascript C++ Electronics

Dabbled with:

SQL PHP 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 classifying vehicles.
- I developed software in C to generate 2D side profiles of vehicles using data from LiDAR and radar sensors. 

### Summer Project Durham University 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.

## Achievements

- Launched first ever Durham Yule Ball with a budget of over £3000, which was nominated for best student event and commended by the leading student newspaper. 
- Founded the Durham Circus Society.
- 2nd place in the Athena Swan Level 1 Essay, entitled *Why are there fewer women in engineering?*. 
- Graphic design for Durham Juggling Convention marketing.
- Grade 8 Saxophone, grade 7 Clarinet and grade 3 piano.
- EAL Level 2 Certification in Applying Business-Improvement Techniques.