Frances Cooper | CV

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Education

University of Glasgow — **Glasgow, Scotland**
PhD Computing Science — *2015 - present*
- Thesis title: Open problems in the area of matching under preferences
- School of Computing Science research student representative
- Tutor (see *Teaching* section); member of several committees (see *Committees* section)

University of Glasgow — **Glasgow, Scotland**
MSc Software Development, Distinction - Class Prize - Grace Hopper Prize — *2013 - 2015*
- Member of committee (see *Committees* section)

Open University — **UK-wide**
BSc Mathematics, 1st Class (Hons) — *2009 - 2013*
- Distance learning degree
- Whilst studying, I worked in special needs and mainstream schools, and volunteered with a drug agency and DeafblindUK

Awards and Scholarships

Google Code Jam to I/O for Women 2019: *2019*
- Global coding competition winner
- Expenses paid trip to Google I/O conference in *Mountain View, California*

3 Minute Thesis Finalist: *2017*
- Competition to explain your thesis to a non-technical audience
- *University of Glasgow Finalist* and *College of Science and Engineering Commendee*

EPSRC PhD Scholarship: *2015 - 2020*
- Funded PhD in Computer Science, University of Glasgow (3.5 years)

Confucius Institute Scholarship, China: *Summer 2015*
- Won a scholarship after previous Chinese language study
- Attended a *Language and Culture Exchange* at *Nankai University in Tianjin, China*

Class Prize: *2013 - 2015*
- MSc Software Development *highest overall grade (21.2 / 22.0)*

Grace Hopper Prize: *2013 - 2015*
- MSc Software Development *highest achieving female student*

SFC MSc Scholarship: *2013 - 2015*
- Funded MSc in Software Development, University of Glasgow

Internships

(future) Google — **Munich, Germany**
3 month internship at Google, Munich — *July - September 2019*

Amazon — **Edinburgh, Scotland**
3 month internship at Amazon Development Centre, Edinburgh — *April - June 2018*
- Developed new methods to allow advertisers on Amazon to understand who their customers are. This work encompassed graph theory, algorithms and machine learning.

Computing skills

General computing skills: Java, Python, Gurobi, Bash, HTML, CSS, Bootstrap, LaTeX, Git

Areas of interest: Algorithms & Complexity, Integer/Constraint Programming, Optimisation

Enterprises and Teaching

Founder of Glasgow Women in Computing Science (GWiCS) **Glasgow, Scotland**
Networking and talks supporting career progression for women in CS *August 2018 - present*
- 100+ members, talks by leaders in academia and industry

Creator of www.program-able.org **Glasgow, Scotland**
A CS tutorial website aimed at improving code efficiency *2018 - present*
- Articles on e.g. Command line tools, Git, Regex, Sed, Grep

Lead Instructor for CodeFirst:Girls **Glasgow, Scotland**
Enterprise to increase the number of women in tech. *September 2018 - present*
- Teaching HTML, CSS, UX, Git & version control, Bootstrap, Javascript and jQuery

Various tutoring and outreach positions **Glasgow, Scotland**
For example: *October 2015 - present*
- Hacky Hour and Compumatch - Sharing computing skills with researchers in other departments
- Teaching cryptography to schoolchildren (Quantum Cryptography School)
- Teaching & marking Java Programming at Masters level

Conference Presentations

SEA conference talk - paper presentation **L'Aquila, Italy**
Symposium on Experimental Algorithms *June 2018*
- Paper title: A 3/2-Approximation Algorithm for the Student-Project Allocation Problem

BCTCS conference talk **Royal Holloway, England**
British Colloquium of Theoretical Computer Science *March 2018*
- Title: A 3/2-Approximation Algorithm for the Student-Project Allocation Problem

Invited speaker AWIDM **Cape Town, South Africa**
Invited speaker at African Women in Discrete Mathematics conference *January 2018*
- Encouraging women graduates into academic research roles

SICSA poster presentation **Dundee, Scotland**
The Scottish Informatics & Computer Science Alliance *June 2017*
- Title: Hard Variants of the Student-Project Allocation Problem *shortlisted

MATCH-UP poster presentation **Boston, USA**
Microsoft Research Centre MATCH-UP conference *April 2017*
- Title: Integer Programming for Student-Project Allocation

Committees

College of Science and Engineering Strategic Advisory Board: *2018 - 2019*

School of Computing Science Research Students Committee: *2017 - 2018*

BCTCS conference 2018 organising committee: *2017 - 2018*

College of Science and Engineering Graduate School Board: *2017 - 2018*

Athena SWAN committee (promoting gender equality in CS): *2015 - 2016*

MATCH-UP and COST Action conference 2015 organising committee: *2015 - 2016*

Languages

English: Native proficiency

Mandarin: Beginner/Intermediate *Hanyu Shuiping Kaoshi (HSK) level 2 certificate*

Publications and software

Publications

- Frances Cooper. Popular Matchings in the House Allocation Problem. Masters thesis. University of Glasgow, School of Computing Science, 2015.
- F. Cooper and D. Manlove. A 3/2-Approximation Algorithm for the Student-Project Allocation Problem. In *Proceedings of Leibniz International Proceedings in Informatics (LIPIcs)* 103:8:1-8:13, 2018. Available from `http://drops.dagstuhl.de/opus/volltexte/2018/8943`. The full version is available as Technical Report number 1804.02731, Computing Research Repository, Cornell University Library, 2018. Available from `http://arxiv.org/abs/1804.02731`.

Research software and data

- Frances Cooper and David Manlove (2018). Data: A 3/2-approximation algorithm for the Student-Project Allocation problem [Data set]. Zenodo. Available from `https://doi.org/10.5281/zenodo.1186824`.
- Frances Cooper and David Manlove (2018). fmcooper/stable-SPA (Version v1.0.1). Zenodo. Available from `https://doi.org/10.5281/zenodo.1186839`.
- Frances Cooper and David Manlove (2019). Data: Two-sided profile-based optimality in the stable marriage problem (Version 1.0.0) [Data set]. Zenodo. Available from `https://doi.org/10.5281/zenodo.2542704`.
- Frances Cooper and David Manlove (2019). fmcooper/stable-SM (Version v.1.0.1). Zenodo. Available from `https://doi.org/10.5281/zenodo.2545801`.

Uni-Match software

- Frances Cooper. Uni-Match software to perform student-project allocations. Access via a web-app is available to universities free on request. Currently used in several universities in the UK, Ireland, China and Singapore. University of Glasgow, School of Computing Science, 2016. Updated 2019.