

Frances Cooper

CV

School of Computing Science
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Education

- 2015 - present **PhD Computing Science**, *University of Glasgow, Scotland*.
Thesis title: Algorithmic Results for Matching Problems Under Preferences
Computing Science research student representative (approx 100 research students)
Tutor (see *Teaching* section)
Member of several committees (see *Community* section)
- 2013 - 2015 **MSc Software Development**, *University of Glasgow, Scotland*.
Grade: **Distinction** (highest grade)
Class Prize - highest overall grade (21.2 / 22.0) out of 75 students
Grace Hopper Prize - highest achieving female student
Member of committee (see *Community* section)
- 2009 - 2013 **BSc Mathematics**, *Open University, UK-wide*.
Grade: **1st Class Hons** (highest grade)
Whilst studying for this distance learning degree, I worked in special needs and mainstream schools, and volunteered with a drug agency and DeafblindUK.

Awards and Scholarships

- 2019 **Google Women Techmakers Scholarship** (€7000). **1 of 20 winners** from Europe, the Middle East and Africa. Awarded based on "academic performance, leadership, and impact on the community of women in tech".
- 2019 **Software Sustainability Institute (SSI) Fellowship** (£3000). SSI is a national organisation aimed at improving how software is used in research. **1 of 17 winners** from all academic career levels in the UK.
- 2019 **Google Code Jam to I/O for Women 2019** (\$750). Global coding competition winner - placed 177th out of over 1000 competitors. Invited to attend the Google I/O conference in *Mountain View, California*.
- 2017 **3 Minute Thesis (3MT) Finalist**. 3MT is a competition to explain your thesis to a non-technical audience. I was *University of Glasgow Finalist* and *College of Science and Engineering Commendee*.
- 2015 **EPSRC PhD Scholarship** (approx £63,500). Engineering and Physical Sciences Research Council (EPSRC) funded PhD in Computer Science, University of Glasgow (3.5 years).

- Summer 2015 **Confucius Institute Scholarship, China.** Won a scholarship after previous Chinese language study. Invited to attend a Language and Culture Exchange at *Nankai University in Tianjin, China.*
- 2015 **MSc Software Development prizes. Class Prize** (£100) - highest overall grade (21.2 / 22.0) out of 75 students. **Grace Hopper Prize** (£100) - highest achieving female student.
- 2013 **SFC MSc Scholarship** (£5000). Scottish Funding Council (SFC) funded MSc in Software Development, University of Glasgow.

Internships

- 2019 **Google (future)**, 3 month internship as a Software Engineer at Google, Munich, Germany.
- 2018 **Amazon**, 3 month internship as a Software Development Engineer at Amazon, Edinburgh, Scotland.
I developed new methods to allow advertisers on Amazon to understand who their customers are. This work encompassed graph theory, algorithms and machine learning.

Community

- 2018 - present **Founder of Glasgow Women in Computing Science (GWICS).** GWICS provides networking and talks from leaders in academia and industry, supporting career progression for women in CS. **90+ members.**
- 2016 - present I have been an **external reviewer** for the following conferences and journals: WINE (Web and Internet Economics), IEEE: Transactions on Education Journal, IJCAI (International Joint Conference on Artificial Intelligence) and MATCH-UP.
Research community:
- 2018 - 2019 College of Science and Engineering Strategic Advisory Board
- 2017 - 2018 Computing Science Research Students Representative sitting on the School of Computing Science Research Students Committee. Representing approximately **100 research students.**
- 2017 - 2018 BCTCS conference 2018 organising committee
- 2017 - 2018 College of Science and Engineering Graduate School Board
- 2015 - 2016 Athena SWAN committee (promoting gender equality)
- 2015 - 2016 MATCH-UP and COST Action conference 2015 organising committee
- 2018 **Invited speaker at AWIDM** (African Women in Discrete Mathematics) conference in Cape Town, South Africa. Encouraging women graduates into academic research roles.

Teaching

2018 - present **Creator of Program-Able (www.program-able.org)**, a CS tutorial website aimed at improving basic coding skills. Articles on e.g. Command line tools, Git, Regex, Sed and Grep.

2018 **Lead Instructor for Code First: Girls**. Code First: Girls is a social enterprise to increase the number of women in tech. I was a lead instructor teaching HTML, CSS, UX, Git & version control, Bootstrap, Javascript and jQuery.

Other teaching and outreach:

2018 - present Hacky Hour and Compumatch - Enterprises to share computing skills and collaborate with researchers in other departments.

2018 Teaching schoolchildren at the Quantum Cryptography School

2015 - 2016 Teaching & marking Java Programming at MSc level

Computing skills

Skills Java, Python, Gurobi, Bash, Git

Interests Algorithms & Complexity, Integer/Constraint Programming, Machine learning

Conference Presentations

April 2019 **Conference talk AlgoUK & BCTCS** (British Colloquium of Theoretical Computer Science), *Durham, England*.

Title: *Two-sided Profile-based Optimal Matchings for the Stable Marriage Problem*

June 2018 **Conference talk SEA** (Symposium on Experimental Algorithms), *L'Aquila, Italy*.

Title: *A $3/2$ -Approximation Algorithm for the Student-Project Allocation Problem*

March 2018 **Conference talk BCTCS** (British Colloquium of Theoretical Computer Science), *Royal Holloway, England*.

Title: *A $3/2$ -Approximation Algorithm for the Student-Project Allocation Problem*

January 2018 **Invited speaker AWIDM** (African Women in Discrete Mathematics conference), *Cape Town, South Africa*.

Encouraging women graduates into academic research roles

June 2017 **Poster presentation SICSA** (Scottish Informatics & Computer Science Alliance), *Dundee, Scotland*.

Title: *Hard Variants of the Student-Project Allocation Problem*

Top 3 posters among all 2nd year PhD students in Scotland

April 2017 **Poster presentation MATCH-UP**, *Boston, USA*.

Title: *Integer Programming for Student-Project Allocation*

Software

- **Frances Cooper**. **Uni-Match software** to perform student-project allocations. University of Glasgow, School of Computing Science, 2017. Updated 2019.
 - Access via a web-app is available to universities free on request.
 - Used in **8 universities and organisations** in the UK, Ireland, China and Singapore.
 - **Worldwide 1000's of students optimally allocated** to projects using this software.
- **Frances Cooper** and David Manlove. **stable-SM**. Title: *Two-sided profile-based optimality in the stable marriage problem*. Available from [here](#). Data available from [here](#), 2019.
- **Frances Cooper** and David Manlove. **stable-SPA**. Title: *A 3/2-approximation algorithm for the Student-Project Allocation problem*. Available from [here](#). Data available from [here](#), 2018.

Publications

- **Frances Cooper** and David Manlove. A 3/2-Approximation Algorithm for the Student-Project Allocation Problem. In *Proceedings of SEA 2018: the 17th International Symposium on Experimental Algorithms (LIPIcs)*, 103:8:1-8:13, 2018. Available from [here](#). The full version is available from [here](#), 2018.
- **Frances Cooper**. Popular Matchings in the House Allocation Problem. Masters thesis. University of Glasgow, School of Computing Science, 2015.

Languages

English	Native proficiency	
Mandarin	Beginner/Intermediate	<i>Hanyu Shuiping Kaoshi (HSK) level 2 certificate</i>