MADALINA I. SAS

MEng Computing, ACGI, PhD Candidate

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gitlab.com/miscodes

WORK EXPERIENCE

2020 - present | **Synch.Live** — *System Architect & Researcher*

Framework for collective behaviour experiments in humans using RaspberryPi.

2017 - present | **Freelance** — *Software & Cybersecurity consultant*

Supporting small business with cybersecurity, especially on their internet presence and on the Windows platform, but also project-based software engineering and quantitative research.

2017 - 2020 | **Netcraft** — *Internet Services Developer*

Working in content filtering and automated countermeasures against phishing and malware. Running the Netcraft web server survey, collecting internet statistics. Full website redesign.

2014 - 2016 | **King's CTU** — *Clinical Software Analyst Assistant*

Full-stack development of bespoke systems for clinical trials, including automating the randomisation process, treatment management systems, data validation, trial design, industry-standard documentation and medical SOPs. Good Clinical Practice training.

2015 | **Imperial College London** — *Undergraduate Researcher*

Using complex program verification logics to prove correctness of concurrent data structures.

2014 | **Google** — *Software Engineering Intern*

Front-end and back-end development for user settings.

TEACHING EXPERIENCE

2020 - present | **Ethics, Privacy, AI in society** — *Lab demonstrator*

Helping students with Python-based AI fairness coursework.

2020 - present | **Complexity & Networks** — *Lab demonstrator*

Helping students with Python-based simulations of the Oslo sandpile model and Barabasi-Albert network model.

2020 - present | **Cryptography Engineering** — *Teaching Assistant*

Participating in tutorials, creating Jupyter notebooks with practical exercises, and presenting them in class.

2020 | **Net & Web Security** — *Teaching Assistant*

Answering students' questions on course content during tutorials.

LANGUAGES

Python, Haskell, Perl, C#, C++, JavaScript, SQL, Scala, R, Nix, Bash

Romanian (native)

English (bilingual)

RESEARCH & TECH SKILLS

Modelling & Simulation, Automation & Orchestration, Information Theory, Network Science, Dynamical Systems, Signal Processing, Machine Learning, Computational Neuroscience

INTERESTS

First Aid, Intermediate Ham Radio licence, Professional degree in Photography, Web & Graphic design, Philosophy

EDUCATION

2020 - 2024 | **Imperial College London,** UK — *Complexity Science PhD*
2016 - 2017 | **Imperial College London,** UK — *Computing MEng (first class, distinction)*
2013 - 2016 | **Imperial College London,** UK — *Computing BEng*
2011 - 2013 | **Theodor T. Burada Arts School,** Constanta, Romania — *Photography diploma*
2009 - 2013 | **Ovidius High-School,** Constanta, Romania — *Mathematics and Computer Science*

CONFERENCES

2023 | *ASSC26, New York, NY*
2023 | *Santa Fe Institute Collective Intelligence Symposium, Santa Fe, NM*
2022 | *CCS22, Palma de Mallorca, Spain*
2022 | *Data Natives, London, UK*

AWARDS & GRANTS

2020 | **Splunk Scholar** — *PhD Scholarship*
2018 | **SnowWall**— *HutZero finalist*
2017 | **SnowWall**— *Imperial College London Distinction*
2017 | **1st prize - InterAce Cybersecurity Challenge 2017**
2013 | **Computational Morality** — *Imperial College Corporate Partnership Prize*

PUBLICATIONS

Synch.Live: studying self-organised collective movement in humans with open technology

2023 | In prep

Sas M*, Mediano P, Rosas F, Bor D, Sas A, Knottenbelt W, Jensen HJ, Leone H

Multiscale coordination dynamics between performers and audience characterise innovative experience by Western classical music improvisation

2023 | In prep

Nozawa T*, Sas M*, Dolan D, Rosas F, Rajpal H, Timmermann C, Mediano P, Honda K, Amano S, Miyake Y, Jensen HJ

Growing polarisation around climate change on social media

2021 | doi: 10.48550/arXiv.2112.12137

Falkenberg M, Galeazzi A, Torricelli M, Di Marco N, Larosa F, Sas M, Mekacher A, Pearce W, Zollo F, Quattrociocchi W, Baronchelli A

Interpreatable XGBoost-based Classification of 12-lead ECG applying Information Theory measures from Neuroscience

2020 | Conference Paper: Computing in Cardiology | Publisher: IEEE

Raipal H*, Sas M*, Lockwood C, Joakim R, Peters NS, Falkenberg M