

# MADALINA I. SAS

*MEng Computing, ACGI, PhD Candidate in Complex systems*

My work is interdisciplinary and focuses on emergent properties of systems of many interacting components, using computational and experimental techniques from information theory, signal processing, network science, neuroscience and psychology. I build experimental tech, I value open science and all devices and tools I use are FOSS.

📍 12 floor extension, EEE building,  
Imperial College, London, UK

✉ [madalina.sas@pm.me](mailto:madalina.sas@pm.me)

🌐 [mis.pm](https://mis.pm)

🔗 [github.com/mearlboro](https://github.com/mearlboro)

## WORK EXPERIENCE

### **Synch.Live** — *System Architect & Researcher*

2020 - present | [RaspberryPi](#)

FOSS framework for collective behaviour experiments in humans.

### **Freelance** — *Software & Cybersecurity consultant*

2017 - present

Supporting small business with cybersecurity, internet presence and security policies, occasionally investigating cybercrime.

### **Netcraft** — *Internet Services Developer*

2017 - 2020 | [Perl](#), [Javascript](#), [SQL](#)

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

### **King's Clinical Trials Unit** — *Clinical Software Analyst Assistant*

2014 - 2016 | [C#](#), [.NET](#), [SQL](#), [iOS](#)

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

### **Imperial College London** — *Undergraduate Researcher (UROP)*

2015 - 2015 | [Program logic and proof](#), [Haskell](#)

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

### **Google** — *Software Engineering Intern*

2014 | [Java](#), [Guice](#), [Clojure JS](#)

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

### **Freelance** — *Designer / Developer*

2013 - present | [Javascript](#), [HTML](#), [CSS](#), [Adobe Creative Suite](#)

Support start-ups and businesses with technical expertise, design and branding, and web development.

## TEACHING EXPERIENCE

2023 - present | **Statistical Information Theory** — *Teaching Assistant*

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

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

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

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

## LANGUAGES

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

Romanian (native)

English (bilingual)

## OTHER SKILLS

First Aid training, Intermediate  
Ham Radio licence, Professional  
degree in Photography, Graphic  
Design, Philosophy

## EDUCATION

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

## AWARDS & GRANTS

2020 | **Splunk Scholar** — *PhD Scholarship*  
2018 | **SnowWall**— *HutZero cyber-security accelerator 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: Collective Problem-Solving through Flocking Motion induces higher Connectedness to Others*

2024 | doi: [10.31234/osf.io/e8j39](https://doi.org/10.31234/osf.io/e8j39)

Sas MI, Mediano PAM, Rosas FE, Leone H, Sas A, Lockwood C, Jensen HJ, Bor D

*Swinging, Fast and Slow: Multiscale Synchronisation Dynamics Reveals the Impact of an Improvisatory Approach to Performance on Music Experience*

2023 | doi: [10.31234/osf.io/cqxya](https://doi.org/10.31234/osf.io/cqxya)

Nozawa T\*, Sas MI\*, Dolan D, Rosas FE, Rajpal H, Timmermann C, Mediano PAM, Honda K, Amano S, Miyake Y, Jensen HJ

*Growing Polarisation around Climate Change on Social Media*

2021 | doi: [10.1038/s41558-022-01527-x](https://doi.org/10.1038/s41558-022-01527-x) | Publisher: [Nature Climate Change](#)

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

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

2020 | Conference Paper: [Computing in Cardiology](#) | Publisher: [IEEE](#)

Rajpal H, Sas MI, Lockwood C, Joakim R, Peters NS, Falkenberg M

## CONFERENCES

2023 | **The Future of the Concert Conference** — *Poster presentation*  
2023 | **Complexity, Computers, Consciousness @ IoP** — *Participant*  
2023 | **Brain Complexity Seminar @ IoPPN** — *Participant*  
2023 | **ASSC26** — *Poster presentation*  
2023 | **Category Theory for Consciousness**— *Participant*  
2023 | **Santa Fe Institute Collective Intelligence Symposium** — *Poster presentation*  
2022 | **CCS2022** — *Talk in Group Dynamics*  
2022 | **ASSC25**