

Meenatchi Sundaram Muthu Selva Annamalai

✉ Meenatchi_Sundaram@i2r.a-star.edu.sg
🌐 <https://github.com/msundarmsa>

Education

2021 **BEng Computing**, *Imperial College London*, United Kingdom.

Honors and Awards

2021 **Winton Capital Applied Undergraduate Project Computing Prize.**

Awarded for an outstanding final year project in applied computing

2021 **Governors' Prize.**

Awarded to the final year student with the best overall performance in BEng Computing

2021 **Dean's List Year 3.**

Top 10% of year. Subjects taken: Number Theory, Network and Web Security, Type Systems, Distributed Algorithms, Computer Vision, Operations Research, Software Engineering Group Project, Final Year Project

2020 **Dean's List Year 2.**

Top 10% of year. Subjects taken: Algorithms II, Compilers, Computing Laboratory II, Models of Computation, Networks and Communications, Operating Systems, Probability and Statistics, Software Engineering and Design, Computing Group Project

2019 **Dean's List Year 1.**

Top 10% of year. Subjects taken: Computer Architecture, Databases I, Discrete Structures, Graphs and Algorithms, Hardware, Logic, Mathematical Methods, Programming, Reasoning about Programs, Computing Topics, Computing Group Project

2016 **National Science Scholarship (BS-PhD).**

Awarded to students with a keen interest in Science and Research, and excellent academic standing to pursue an undergraduate followed by doctoral degree in overseas universities

Publications

Pool Inference Attacks on Local Differential Privacy, In *31st USENIX Security Symposium (USENIX Security 22)*.

Gadotti, A., Houssiau, F., Muthu, M. S., and de Montjoye, Y. A.

The Observatory of Anonymity: An Interactive Tool to Understand Re-Identification Risks in 89 countries, In *Companion Proceedings of the Web Conference 2021 (pp. 687-689)*.

Rocher, L., Muthu, M. S., and de Montjoye, Y. A.

Privacy Preserving Collective Learning with Homomorphic Encryption, in *IEEE Access*, doi: 10.1109/ACCESS.2021.3114581.

J. Paul, M. S. M. S. Annamalai, W. Ming, A. A. Badawi, B. Veeravalli and K. M. M. Aung

Research Experiences

- 2022 **1 Year Research Attachment**, Institute for Infocomm Research.
 Project 1: Collaborative polygenic risk score validation based on Multiparty Homomorphic Encryption
 Project 2: Differentially private synthetic image generation
 Mentors: Khin Mi Mi Aung
- 2021 **Final Year Project**, Imperial College London.
 Project: Studying the information leakage in differentially private mechanisms
 Mentors: Andrea Gadotti and Yves-Alexandre de Montjoye
 ○ Awarded Winton Capital Applied Undergraduate Project Computing Prize
- 2020 **Undergraduate Research Opportunities Programme**, Imperial College London.
 Project: Privacy risk assessment tool for real-world data collections
 Mentors: Luc Rocher and Yves-Alexandre de Montjoye
 ○ Designed and created interactive website that demonstrates re-identification risk in 89 countries based on prior research done in the group. Ported over code from Julia to Typescript for deployment to website and further optimized routines using WebAssembly. <https://cpg.doc.ic.ac.uk/observatory/>
 ○ Full code is available at <https://github.com/computationalprivacy/observatory>
- 2019 **8 Week Research Attachment**, Institute for Infocomm Research.
 Project: Homomorphic Encryption for Transfer Learning with MIMIC-III Timeseries Data
 Mentors: Jestine Paul and Khin Mi Mi Aung
 ○ Explored the applicability of HE in a transfer learning setting for LSTMs
- 2014 **H3 Research, GCE A Levels**, Institute for High Performance Computing.
 Project: Designing photonics components and circuits using photonic crystals
 Mentors: Chu Hong Son
 ○ Modelled and simulated photonic crystal structures in order to optimize them for biosensor applications

Presentations

- 2021 **The Observatory of Anonymity: An Interactive Tool to Understand Re-Identification Risks in 89 countries.**
 Companion Proceedings of the Web Conference 2021. <https://rocher.lc/observatory-www21.pdf>

Teaching

Undergraduate Teaching Assistant

- 2021 **Discrete Structures, Logic, Reasoning about Programs and Graphs and Algorithms**, *Imperial College London*.
 Conducted weekly tutorial sessions and graded homework

Personal Projects

- 2020 **STASYS**.
 Created an open source aim tracing software for air pistol/air rifle targets using OpenCV.
<https://github.com/msundarmlsa/stasys>
- 2013 **Enrichment Science and Training Programme**.
 Developed mobile app to enhance classroom learning.
- 2011 **Special Programme in Enquiry and Research**.
 Programmed a hygienic, non-touch interface for feedback systems deployed in unsanitary locations using Microsoft Kinect.

Computer skills

Languages: C/C++, Java, Haskell, Python, Typescript/Javascript, Elixir

Experiences in: Software engineering and design, Web, mobile and desktop applications, Multiprocess parallel programming, Machine Learning/Deep Learning, Numerical integration

Extra-curriculars

2019 **Major Event Officer of Imperial College Singapore Society.**

Produced a student-written and performed full-length musical

2014 **Vice President of IT & Innovation Club.**

Organized and taught programming courses and workshops for members, lead teams in competitions and managed club's administrative affairs