

JONATHAN RUBIN

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Nationalities: Australian, Israeli, Romanian (soon British)

Relevant Skills: Python/R, Data Science and Machine Learning

EDUCATION

2019 - 2023 **MSci in Mathematics, Imperial College London – Year 3 (First-Class Honours in Year 1 and Year 2, currently in Year 3)**

Relevant Modules:

- Introduction to Machine Learning
- Principles of Programming
- Network Science
- Computational Linear Algebra
- Time Series Analysis
- Statistical Modelling 1&2
- Quantum Mechanics 1&2

2017 - 2019 **A - Levels in Mathematics, Further Mathematics, Physics and Chemistry (A*A*A*A)**

RESEARCH EXPERIENCE

2021 **Funded research UROP (Undergraduate Research Opportunities Programme): “Exploring the Interplay Between Phase Separation and Collective Motion in Active Matter”**

- Selected by the Maths Department for a 10-week research project, supervised by Dr Thibault Bertrand
- Developed skills in efficient Python programming for simulations, Numerical Analysis techniques, and team working skills
- Completed a literature review on the field of Active Matter
- Wrote code to simulate large scale systems of interacting active particles, analysing motility induced phase separation and nematic/polar order phase transitions
- Collaborated with a research group of PhD and MSc students, weekly meetings with the project supervisor and team.
- Led the final presentation of our research grant representing the entire research group.

PROJECTS

- 2021 End of Year Group Project – Year 2: “An Introduction to Time Series with IBM Data Analysis” – Grade: 84%**
- Studied different models of time series (AR, MA and ARIMA) and methods of forecasting, analysed large dataset of IBM stock data using R programming language
- 2020 End of Year Project – Year 1: “Dynamics of SIRS Based Disease Models” – Grade: 80%**
- Review of the theory behind limit cycles with application SIRS infectious disease model analysis
- 2020 Personal Programming Project - NLP Machine Learning Program**
- Developed a Natural Language Processing program, that builds a network representation of the language, analysed this network using Community Identification (by Modularity Maximisation) to generate a dataset of word clusters.

COMPETITIONS

- Shortlisted for [Citadel](#) Europe Datathon (one of the largest investment companies in the world) (2021).
- Imperial College Integration Bee (2021) – 3rd Place
- National Cypher Challenge (2018) - 7th place (out of 400)

SOCIETIES

- Imperial College Israeli Society – Treasurer, 2021 secured £40,000 for a high-tech trip to Israel, April, 2022.
- Imperial College Data Science Society – Member.