Samuel Forbes

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Most Recent Employment and Experience

- *Jan. 2023 - present.* Independent research in mathematical modelling and statistics.
- *Oct. 2021 - Sept. 2022.* Teaching fellow/tutor in Warwick Statistics department. I assisted with lecture notes, tutorials and marking assignments and exams. Modules included first year introductory probability, introductory R programming and second year stochastic processes.

Education

University of Warwick
PhD in Mathematics of Systems (Fully Funded), *2018-2022*
Thesis: 'Data Driven Analysis and Modelling of the Wealth Distribution'
Supervisors: Professor Stefan Grosskinsky and Dr Alexander Karalis Isaac

MSc in Mathematics of Systems (Merit, Fully Funded), *2017-2018*

University of Manchester
MSc in Pure Mathematics and Mathematical Logic (Merit), *2014-2015*

University of York
BSc in Mathematics (First), *2010-2014*

Research

[1] Forbes, S. (2023). Linear regression for power law distribution fitting. *arXiv preprint arXiv:2312.13229*. (Link).

[2] Forbes, S. (2023). A study of the probability distribution of the balls in bins process with power law feedback. *arXiv preprint arXiv:2308.10734*. (Link).

[3] Forbes, S. and Grosskinsky, S. (2022). A study of UK household wealth through empirical analysis and a non-linear Kesten process. *Plos one*, 17(8):e0272864. (Link).

[4] Forbes, S. (2022). *Data driven analysis and modelling of the wealth distribution*. PhD thesis, University of Warwick. (Link).

Further Experience

- *Jul. 2021.* Participated in London Mathematical Laboratory (LML) summer school on a month long research project titled 'The evolution of income or wealth distribution with higher order autoregressive processes'.
- *Nov. 2019 - May 2021.* Initiated and led a Maths in the Social Science Research Group (MISSRG) in the maths department at the University of Warwick.
- *Jan. - Mar. 2020, 2021.* Teaching assistant for Warwick computer science course titled discrete maths and its applications, where I led tutorials and marked assignments.
- *Sept. - Dec. 2020.* Marker for a second year algorithms course in Warwick computer science.
- *Jul. - Sept. 2018.* MSc project in macroeconomics on the relationship between wealth inequality and the velocity of money in the UK involving time series analysis and modelling in Python.
- *Mar. - Jun. 2018.* MSc group project on cancer detection from whole slide images involving machine learning techniques using Python and Matlab.
- *Feb. - Mar. 2018.* Kaggle competition 2018 data science bowl on cell nuclei detection as part of Warwick machine learning course using Python, in particular tensorflow.
- *Mar. - May 2018.* Statistical research using R into traits of individuals who have Simian lines as part of Warwick medical statistics course.
- *Feb. 2016 - Mar. 2017.* Taught mathematics at secondary schools in Coventry and Birmingham.
- *Jul. 2013 - Aug. 2013.* Internship at the Advanced Manufacturing Research Institute (AMRC) in Sheffield. Involved in engineering project with Dr Zunmin Geng titled 'Time-varying re-optimization and high-frequency vibration assistance for deep hole drilling and boring'.

Conferences

- *Mar. 2023.* Attended AI UK 2023 hosted by the Alan Turing institute.
- *Mar. 2022.* Speaker at the 2022 Warwick Statistical Conference at Gregynog on the shape of the wealth distribution.
- *Jun. 2021.* Speaker at Oxford SIAM student chapter conference.
- *Jan. 2021.* Speaker at the Ergodicity Conference 2021 organised by the London Mathematical Laboratory.
- *Jun. 2020.* Speaker at the Oxford summer school in economic networks.
- *2019-2021.* Attended multiple rebuilding macroeconomics conferences including what can complexity add to macroeconomic policy making.
- *Feb. 2019.* Co-organiser of University of Warwick mathematics interdisciplinary day (MIR@W) with economics entitled the dynamics of money.
- *Sept. 2018.* Attended economics conference on post-growth at the EU parliament in Brussels.
- *Jul. 2018.* Attended University of Warwick GPU summer school.

Skills and Interests

- Experience primarily with Python and LaTeX, but also with R, SQL, C++, Julia, Matlab and Mathematica. Examples of code on my Github: `https://github.com/saf92`
- Enjoy many sports including basketball, football, badminton, squash and racketball where I participate on a casual basis.