Ira Shokar

i.j.s.shokar@maths.cam.ac.uk github.ira-shokar.github.io Department Page Text in blue are links

PhD Student at the University of Cambridge's Department of Applied Mathematics & Theoretical Physics (DAMTP) researching applications of Machine Learning to Atmospheric Fluid Dynamics.

Technical Skills: *Languages*: `Python`, `Julia`, `MATLAB` & `C++`. *ML Frameworks*: `Tensorflow`, `PyTorch`, `Scikit-Learn`, & `GPy`. *Distributed Computing*: JASMIN, Fawcett (DAMTP HPC System), UCL High Energy Physics Linux Cluster, `AWS Batch`. *Unix-like OS*: `Debian-Based Linux Systems` & `MacOS`. Basic `HTML` & `CSS`. `Git`, LaTeX.

Education

Pembroke College, University of Cambridge — **Cambridge, UK**
PhD. Applied Mathematics - Application of Artificial Intelligence — *October 2020 – Present*

- Awarded UKRI EPSRC funding to study at the CDT in the Application of Artificial Intelligence for Environmental Risks.
- **Research Topic**- 'Deep learning to predict dynamics on an inertial manifold of mid-latitude jet systems'.
  - Co-Supervised by Professors Peter Haynes & Rich Kerswell at DAMTP.
- **Teaching** - 2022 : Supervised Part II Computer Science - Deep Neural Networks.
- **Organised Workshops** - 2022 : Cambridge Centre for Climate Science Machine Learning for Climate Science Workshop.
  - Along with 2 other graduate students, we organised a workshop introducing Machine Learning to researchers in the atmospheric sciences with 3 interactive sessions & a hackathon implementing ML on real world atmospheric data.
  - Attendance reached capacity with 30 attendees. Resources can be found here.

University College, University of London — **Bloomsbury, London**
BSc. Physical Natural Science - Theoretical Physics — *September 2017 – June 2020*

- **1st Class overall** - 1st Class in all 3 years & thesis.
- **Thesis:** 'Deep Learning Classifier Robustness for Neutrino Event Detection using Domain Adversarial Neural Networks'.
  - `[Python:Tensorflow; C++:ROOT]`. Supervised by Dr Chris Backhouse.

Tiffin School — **Kingston-Upon-Thames, Surrey**

- **A-Levels** : **2A*** in Mathematics & Further Mathematics; **2A** in Economics & Physics (*2017*).
- **AS-Levels**: **6A** in above subjects & in History & Physical Education (*2016*). **GCSEs**: 6**A*** & 4**A** grades (*2015*).

Projects

- **Assessing Temporal Change In The Exposure Of Informal Settlements Through Repeat Satellite Observation.** *2021*
  - Group Project `[Python:PyTorch, Tensorflow; JASMIN]`. Supervised by Dr Anita Faul.
- **Quantifying the effectiveness of natural hazard preventions by predicting rainfall runoff in flood risk mitigation.** *2020*
  - `Group Project [Python:PyTorch]`. Supervised by Dr Oscar Branson.
- **HPGe Detector Gamma Ray Spectroscopy simulation of nuclear emission & detector interactions.** *2020*
  - Group Project `[C++:ROOT, GEANT4]`. Supervised by Prof Ruben Saakyan.
- **Chat-bot to Translate Text in Facebook Messenger - UCL Tech Soc Team** (ref: president@ucltechsoc.com). *2020*
  - Developer Circles from Facebook AI Hackaton `[Flask, PyTorch]`.
- **Providing Insight from Credit Card Customer Datasets - Winning Team** (ref: su-datascience@ucl.ac.uk). *2019*
  - UCL Data Science Society Hackathon hosted by Microsoft & American Express `[Scikit-Learn, Azure API]`.
- **Adaptive Image Filter - Winning Team** (ref: shoko.ueda@arm.com). *2019*
  - Applied ML Insight Challenge at Arm Holdings `[Tensorflow]`.
- **Cellular Automata Model to Simulate Motorway Traffic Flow**. *2019*
  - Computational Physics Report `[Python]`. Supervised by Prof David Bowler

Work Experience

FTI Consulting — **Aldersgate St, City of London**
Data Science & Analytics Summer Intern (*ref: kyle.johnson@fticonsulting.com*) — *July 2019 – August 2019*

- 8-week summer internship in which I used dynamic & static web-scraping, graph networks, fuzzy token matching & random forests to identify for anomalous activity indicating fraud & money-laundering. `[Python, Neo4j, SQL]`.

Non-Technical Roles

Pembroke College Graduate Parlour — **Pembroke College, Cambridge**
President (*ref: gp@pem.cam.ac.uk*) — *June 2021 – Present*

- Elected to lead the committee of 12 members & sit on committee meetings with senior college fellows to shape the college experience for graduate students, current. Previosuly **Events Officer** (Oct 2020 – June 2021).

University of London Halls — **Lillian-Penson Hall, Tyburnia & International Hall, Bloomsbury**
Resident Advisor (*ref: Dr Derrick Chong*) — *August 2019 – August 2020*

- Responsibilities included promoting & monitoring residents' personal, mental & social welfare, other pastoral care both throughout the academic year as well as the COVID pandemic, dealing with disciplinary issues & conflict resolution as well as being in charge of organising the social life of the Hall & managing the Lillian-Penson JCR.
- Prevuously **Events Officer Nutford House JCR** , University of London (Sept 2017 - June 2018).

Department of Physics & Astronomy — **University College London, Bloomsbury**
Academic Mentor (*ref: a.owusu@ucl.ac.uk*) — *September 2018 – December 2018*

- Provided guidance to 10 first year students by running weekly sessions to aid in their adaptation to university & the degree.