Ira Shokar

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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**: 6A* & 4A 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.