

# Ira Shokar

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🏠 Department Page

🐙 Github

🔗 Text in blue are links

**Doctoral Student at the University of Cambridge's Department of Applied Mathematics & Theoretical Physics** 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, L<sup>A</sup>T<sub>E</sub>X.

## 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, UK**

**BSc. Physical Natural Science - Theoretical Physics**

*September 2017 – June 2020*

- **First Class overall** - First 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, UK**

- **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](mailto: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](mailto: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](mailto: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, UK**

*Data Science & Analytics Summer Intern* (ref: [kyle.johnson@fticonsulting.com](mailto: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**

**Cambridge, UK**

*President* (ref: [gp@pem.cam.ac.uk](mailto: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. Previously **Events Officer** (Oct 2020 – June 2021).

**University of London Halls**

**Lillian-Penson Hall, Tyburnia, & International Hall, Bloomsbury; London, UK**

*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.
- Previously **Events Officer Nutford House JCR**, University of London (Sept 2017 - June 2018).

**Department of Physics & Astronomy**

**University College, University of London, UK**

*Academic Mentor* (ref: [a.owusu@ucl.ac.uk](mailto: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.