Akbir Khan

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Education	**Sidney Sussex College, University of Cambridge**, UK	2017-2018
	MPhil in Advanced Computer Science	Distinction
	Advised by Prof. Hatice Gunes and Jack Hopkins	
	(Natural Language Processing and Affective Computing)	
	University College London, UK	2013-2017
	MSci in Mathematics and Physics	1st Class Honours
	Advised by Prof. Stephen Bramwell	
	(Thermodynamics and Analytic Magnetic Systems)	
	University of Toronto, Canada	2015-2016
	Visiting Student in Mathematics and Computer Science	GPA: 3.3/4.0

Publications

Considering Race as a Problem of Transfer Learning
Akbir Khan, Marwa Mahmoud. In *Proceedings of the 2019 IEEE Winter Applications of Computer Vision Workshop: Demographic Variations in Performance of Biometric Algorithms* (**oral presentation**)
DOI: 10.1109/WACVW.2019.00022

Detecting Anomalous Application Messages In Telecommunication Networks
Dishant Shah, Jack Hopkins, Akbir Khan, Javid Lakha. Patent accepted at *World Intellectual Property Organisation under the Patent Cooperation Treaty*
Publication Number:WO2019053234

Experience

Spherical Defence - AI/Cyber Security Lab   Jun. 2017 - Present
Chief Research Officer
Manage a team of (5+) research engineers, developing intellectual property
Employee #1, raised a $2 million seed and built an ML based Web Application Firewall
Researched novel deep learning autoencoders to encode tree-structured data
Developed Python service for training/inference models in scalable cloud deployments

Deutsche Bank   Jun. 2016 - Aug. 2016
Software Engineer/Business Analyst
Created front-end (Javascript) for internal search engine of market data
Implemented MIFIDii regulation (€100m budget) at cross-divisional and global scale
Designed project milestones and tracking metrics, to be used by all (300) projects

Imperial College London   Jun. 2014 - Aug. 2014
Research Assistant
Worked with Prof. David Jennings in the Quantum Optics and Laser Group. Applied information theory to validate restrictions within quantum communication protocols

Technical Skills

Languages: Golang, Python [PyTorch, JAX (*contributor*), Scikit-learn, Haiku]
Graduate Courses: Probabilistic ML, Computer Vision, Entanglement Physics, Deep Learning for NLP, Quantum Computation & Communication

Projects

Deep Equilibrium Model [akbir/deq_jax]
JAX + Haiku implementation of an implicit-depth architecture that solves and back-propogates through the equilibrium state of an (effectively) infinitely deep network

Bad Flamingo [jayelm/bad-flamingo]
Gamified data collection of adversarial machine learning examples of sketched images
Awarded 1stPrize at the University of Cambridge Ternary Hackathon

Awards

Provost Excellence Scholarship - UCL
Berkley Exhibition Scholar - Grammar School at Leeds

Extra Curricular

Debating: Finalist at Warwick 2015 and Yale 2016 inter-varsity competitions
Charity: DebateMate - mentoring children in areas of poverty through debate
Sports: Member of the Sidney Sussex College mens rowing 2nd team