

SAIF ANWAR

PhD, Computer Science

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EXPERIENCE

THE UNIVERSITY OF
WARWICK

Senior Graduate Teaching Assistant

📅 October 2021 - Present

📍 Coventry, UK

Involved with teaching, marking and module organisation of:

- Introduction to Artificial Intelligence (2nd Year)
- Image and Video Analysis (4th year/Postgraduate)
- Data Mining (4th year/Postgraduate)
- Data Visualisation (Degree Apprenticeship)

TOSHIBA

Machine Learning Researcher

📅 February 2020 - September 2021

📍 Bristol, UK

- Led and conducted research in communication reduction for federated machine learning.
- Designed and developed novel algorithms using Tensorflow and PyTorch.
- Deployed within a distributed AI architecture to evaluate performance gains.
- Filed patents to protect IP and published research in a Q1 journal.

University of
BRISTOL

Quantum Communications Researcher

📅 June 2021 - September 2021

📍 Bristol, UK

- Developed a geographically and physically accurate simulation software for satellite constellations such as Starlink and developed novel network routing algorithms for such constellations.
- Collaborated with an international group of researchers to develop cryptography techniques (Quantum Key Distribution) within satellite constellations for secure message communication.

Electronic Design Engineer Intern

Elementar UK Ltd.

📅 August 2016 - September 2016

📍 Manchester, UK

EDUCATION

PhD Computer Science

University of Warwick, Funded by TRL Ltd.

📅 2021 - Expected March 2025

- Research focus in explainability and transparency of complex AI models in high risk sectors such as healthcare, finance and transport. XAI is a field of Artificial Intelligence which aims to open the black-box within which many ML models are enclosed. Understanding reasoning for predictions in high-risk domains is necessary for optimising performance and ensuring underlying model behaviour is as expected.
- Regular participation in presentations at university, conferences and industrial partners.

MEng Computer Science & Electronics (First Class Honours)

University of Bristol

📅 2017 - 2021

- Relevant Modules: Data Structures & Algorithms; Symbols, Patterns & Signals; Machine Learning; High Performance Computing; Image Processing & Computer Vision; Applied Deep Learning; Information Processing & the Brain; Robotics Systems
- 3rd Year Industrial Project Dissertation: "Adaptive Communication Reduction for Federated Machine Learning"
- 4th Year Individual Research Project Dissertation: "A Graphical Simulation & Routing Protocol for Intersatellite Network Constellations"

A-Levels

Loreto College

📅 2015 - 2017

📍 Manchester, UK

- Maths (A*), Further Maths (A), Physics (B)

CERTIFICATIONS & PUBLICATIONS

Notable Publications

- "MASALA: Model-Agnostic Surrogate Explanations by Locality Adaptation" ACM KDD 2024. Barcelona, Spain.
- "Selective Updates and Adaptive Masking for Communication-Efficient Federated Learning," in *IEEE Transactions on Green Communications and Networking*
- "CHILLI : a data context-aware perturbation method for XAI" 40th International Conference for Machine Learning (ICML) 2023. Honolulu, Hawaii.

Patents

📅 Filed 2020, Published 2022

- System and Method for Selective Updates in Federated Learning - US20220156574A1
- System and Method for Adaptive Compression in Federated Learning - US20220156633A1

Gold CREST Award for STEM

📅 2016

- Completed a Nuffield Research Placement conducting research with Isoprime Ltd (Elementar UK) in the field of electronic engineering.

OTHER ACTIVITIES

Google Hashcode

📅 2019

📍 Bristol, UK

- Group competition to develop an AI algorithm to solve an image slideshow optimisation problem.

ARM Make-a-thon

📅 2019

📍 Bristol, UK

- Designed and built an automatic pet feeder which used computer vision to detect pet feed requirements with a custom 3D printed housing.

Founder & President: Hip Hop Society

University of Bristol

📅 2018 - 2020

- Founded and led a committee to increase representation of Hip Hop music and culture by organising multiple large scale events.

Member of Student Council

University of Bristol

📅 2018 - 2020

Manchester United Youth Foundation Football

📅 2013 - 2016

📍 Manchester, UK

SKILLS & LANGUAGES

Python PyTorch Pandas NumPy C/C++

OpenCV Tensorflow MATLAB Java

Haskell Git LaTeX SQL Plotly/Dash

English (Native) Urdu (Fluent)

Punjabi (Fluent) Hindi (Fluent)