ASIF KHAN

Ph.D. Student in Machine Learning

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RESEARCH EXPERIENCE

Research Intern

Huawei Research London

September 2021 - December 2021 | London, UK

Supervisor: Dr. Haitham Bou-Ammar

Developed a trust region combinatorial **Bayesian optimisation** solution for antibody sequence design.

Research Intern

Sony Stuttgart Technology Center

March 2019 - August 2019 | Stuttgart, Germany

Supervisor: Dr. Fabien Cardinaux

Developed a **generative adversarial network** for unsupervised speech-to-speech conversion.

Research Assistant

Smart Data Analytics, University of Bonn

Oct 2017 - Sept 2018 | Bonn, Germany

Supervisor: Prof. Jens Lehmann

Developed a representation learning method to incorporate attribute and relational triples for improving link prediction in **knowledge graphs**.

Research Assistant

Bio-Ontology Research Group, KAUST

Jan 2016 – May 2017 | Jeddah, SA

Provided machine learning expertise for solving Life Science problems.

- Developed an ontology aware **hierarchical neural network** to predict Gene Ontology (GO) function from protein sequences.
- Developed a novel method for **representation learning** of nodes and relations in biological **knowledge graphs**.

Research Intern

Rapid Rich Object Search Lab, Nanyang Technological University

May 2015 - July 2015 | Singapore

Supervisor: Prof. Alex Kot

Developed deep **convolutional neural networks** for fine-grained classification of visually similar handbags.

PUBLICATIONS

- **A Khan**, A Storkey, *HALO*: HAmiltonian Latent Operator for content and motion disentanglement in image sequences. In NeurIPS 2022.
- **A Khan**, A Storkey, Adversarial robustness of β-VAE through the lens of local geometry. In Workshop on New Frontiers in Adversarial Machine Learning, ICML 2022.
- **A Khan** et. al, Trust-region Bayesian optimisation with developability constraints enables sample efficient, high-affinity antibody design. In The 2022 ICML Workshop on Computational Biology.
- Other Publications

RESEARCH INTERESTS

- Generative models & Bayesian Inference.
- Physics priors in deep neural networks.
- Geometry for representation learning and generative modelling.

EDUCATION

Ph.D., Machine Learning

University of Edinburgh, UK

2019 – Present, Advisor: Prof. Amos Storkey

MSc., Computer Science

Excellent. GPA: 1.1 (best: 1.0, worst: 5.0)

University of Bonn, Germany

2017 – 2019, Advisor: Prof. Asja Fischer

BTech., Electronics and Communication *GPA: 8.94/10.0*

LNM Institute of Information Technology, India

2012 – 2016, Advisor: Prof. R. Gangopadhyay

SKILLS

Python | C | SQL | SPARQL | MATLAB | Pytorch | Tensorflow | Sklearn | Probabilistic Modeling | Deep Learning | Dynamical Systems | Geometric Deep Learning | Signal Processing

REVIEWING

AISTATS 2023, NeurIPS 2022, ICLR 2022 (Highlighted Reviewer), AISTATS 2022 (Top Reviewer), ML4PS NeurIPS 2021/2022.

TEACHING

University of Edinburgh

Oct 2019 – Present

- Tutor and Marker for Probabilistic Modeling and Reasoning
- Marker for Machine Learning Practical
- Marker for Introductory Applied Machine Learning
- Marker for Data Mining and Exploration

University of Bonn

Oct 2017 – Feb 2019

- Teaching Assistant for Knowledge Graph Analysis