Khurram Javed

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Education

University of Alberta — Edmonton, Canada
M.Sc Computing Science — *Sept. 2018 – Sept 2020*
Supervisor Martha White
Thesis Learning Online-Aware Representations using Neural Networks
Committee Martha White, Rich Sutton, and Yoshua Bengio

National University of Sciences and Technology (NUST) — Islamabad, Pakistan
Bachelors of Engineering in Software Engineering — *Aug 2014 – July 2018*

- **CGPA** – 4.0/4.0
- **President's Gold Medal** (Awarded for graduating with the highest distinction)
- **Rector's Gold Medal** (Awarded to one final year thesis)

International Mathematical Olympiad Training Camps — Lahore, Pakistan
Abdus Salam School of Mathematical Sciences — *2012 – 2014*

- **Honorable Mention** at **55th International Mathematical Olympiad**, Cape Town, South Africa. Missed bronze medal by 2 points. Result
- **Bronze Medal** at **XXVI Asian Pacific Mathematical Olympiad**. Result

Publications (Google Scholar)

Learning Causal Models Online — Pre-print
K.Javed, M.White, and Y.Bengio — Paper/Code

We propose a method for learning models that do not rely on spurious correlations. Our work builds on IRM (M Arjovsky, 2019) except unlike IRM, it can be implemented online to (1) detect spurious features for a set of given features and (2) learn non-spurious features from sensory data.

Meta-Learning Representations for Continual Learning — NeurIPS 19
K.Javed and M.White — Paper/Code/Talk/Poster

We propose OML, an objective for learning representations by using catastrophic interference as a training signal. Resultant representations are naturally sparse, accelerate future learning and are robust to forgetting under online updates in continual learning

Simultaneous Prediction Intervals for Patient-Specific Survival Curves — IJCAI 19
S. Sokota, R. D'Orazio, **K. Javed**, H. Haider and R. Greiner — Paper/Code

We propose a simple drop-in procedure for approximating the Bayesian credible regions of patient-specific survival functions that can be applied to many ISD models.

Revisiting Distillation and Incremental Classifier Learning — ACCV 18
K. Javed, F.Shafait — Paper/Code/Poster

We isolate the truly effective existing ideas for incremental classifier learning from those that only work under certain conditions. Moreover, we propose a dynamic threshold moving algorithm that can successfully remove bias from an incrementally learned classifier when learning by knowledge distillation.

Real-Time Document Localization in Natural Images by Recursive Application of a CNN (Oral) ICDAR 17

K. Javed, F.Shafait Paper/Code/Slides

We propose a computationally efficient document segmentation algorithm that recursively uses convolutional neural networks to precisely localize a document in a natural image in real-time.

Work Experience

Quebec Artificial Intelligence Institute (MILA), Montreal, Canada Feb 2020 — June 2020

Visiting Student advised by Yoshua Bengio

I worked on meta-learning top-down modulation schemes for attention and plasticity, explored the role of causal models in systematic generalization and proposed a method for learning causal models online.

Hi-Silicon, Huawei Research, Edmonton, Canada June 2019 — Oct 2019

Research Associate

I worked at the intersection of meta-learing, reinforcement learing, and representation learning with Hengshuai Yao.

- K.Javed, H.Yao, M.White. Is Fast Adaptation All You Need? NeurIPS19, Meta-Learning Workshop

École Polytechnique Fédérale de Lausanne, Switzerland June 2017 — Sept 2017

Research Intern at LCA3 Slides

I worked on a data-driven approach to predict end to end throughput of PLC-WiFI hybrid paths in ad-hoc networks with Sébastien Henri, Victor Kristof and Prof. Patrick Thiran.

Reviewing

ICLR 2020, AAAI 2020, ICML 2020, NeurIPS 2020, ICLR 2021

Organization

Workshop on Self-Supervised Learning and Reinforcement Learning, ICLR 2021

Awards and Accolades

Top reviewer award for ICML 2020.

NeurIPS19 travel award.

NeurIPS18 volunteer award.

University of Alberta Recruitment Scholarship.

Travel award for KAIST EECamp, South Korea.

ICDAR 2017 Student Travel Award

Summer@EPFL award (3 – 4 % acceptance rate)