

Khurram Javed

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EDUCATION

University of Alberta

Ph.D. in Computing Science

Edmonton, Canada

Jan 2022 – Feb 2025

Supervisor: Prof. Richard S. Sutton

Thesis: *Real-time Reinforcement Learning for Achieving Goals in Big Worlds*

University of Alberta

M.Sc. in Computing Science

Edmonton, Canada

Sept 2018 – Sept 2020

Supervisor: Prof. Martha White

Thesis: *Learning Online-Aware Representations using Neural Networks*

National University of Sciences and Technology (NUST)

B.E. in Software Engineering

Islamabad, Pakistan

Aug 2014 – July 2018

Supervisor: Prof. Faisal Shafait

CGPA: 4.0 / 4.0

President's Gold Medal – awarded to the top graduating student

Rector's Gold Medal – best thesis award

Abdus Salam School of Mathematical Sciences

International Mathematical Olympiad Training Camps

Lahore, Pakistan

2012 – 2014

Honorable Mention, 55th International Mathematical Olympiad

Bronze Medal, XXVI Asian Pacific Mathematical Olympiad

WORK EXPERIENCE

Keen Technologies

Research Scientist

Remote

Oct 2024 – Present

- Working in a small research team led by John Carmack and Prof. Richard S. Sutton.
- Designing robotics systems for real-time decision-making in low-latency environments.

Quebec Artificial Intelligence Institute (MILA)

Visiting Researcher (Advisor: Prof. Yoshua Bengio)

Montreal, Canada

Feb 2020 – Jun 2020

- Investigated online learning algorithms for discovering causal models in dynamic environments.

HiSilicon, Huawei Research

Research Associate

Edmonton, Canada

Jun 2019 – Oct 2019

- Applied reinforcement learning methods to chip design optimization problems.

École Polytechnique Fédérale de Lausanne (EPFL)

Research Intern (Advisor: Prof. Patrick Thiran)

Lausanne, Switzerland

Jun 2017 – Sept 2017

- Evaluated machine learning techniques for traffic routing in multi-hop communication networks.

PUBLICATIONS ([GOOGLE SCHOLAR](#))

K. Javed. Swift-Sarsa: Fast and Robust Linear Control. *RLDM 2025*.

K. Javed, A. Sharifnassab, R. S. Sutton. SwiftTD: A Fast and Robust Algorithm for Temporal Difference Learning. *RLC 2024 (Best Paper Award)*. [\[Paper\]](#) [\[Web Demo\]](#)

K. Javed, R. S. Sutton. The Big World Hypothesis and its Ramifications for Artificial Intelligence. *Finding the Frame Workshop, RLC 2024 (Oral)*. [\[Paper\]](#)

K. Javed, H. Shah, R. S. Sutton, M. White. Scalable Real-Time Recurrent Learning Using Columnar-Constructive Networks. *JMLR, 2023*. [\[Paper\]](#) [\[Code\]](#)

V. Liu, H. Wang, R. Y. Tao, **K. Javed**, A. White, M. White. Measuring and Mitigating Interference in Reinforcement Learning. *CoLLAs 2023*. [\[Paper\]](#)

K. Javed, M. White. Meta-Learning Representations for Continual Learning. *NeurIPS 2019*. [\[Paper\]](#) [\[Code\]](#) [\[Talk\]](#) [\[Poster\]](#)

S. Sokota, R. D'Orazio, **K. Javed**, H. Haider, R. Greiner. Simultaneous Prediction Intervals for Patient-Specific Survival Curves. *IJCAI 2019*. [\[Paper\]](#) [\[Code\]](#)

K. Javed, F. Shafait. Revisiting Distillation and Incremental Classifier Learning. *ACCV 2018*. [\[Paper\]](#) [\[Code\]](#) [\[Poster\]](#)

K. Javed, F. Shafait. Real-Time Document Localization in Natural Images by Recursive Application of a CNN (*Oral*). *ICDAR 2017*. [\[Paper\]](#) [\[Code\]](#) [\[Slides\]](#)

PREPRINTS

T. Degris, **K. Javed**, A. Sharifnassab, Y. Liu, R. S. Sutton. Step-size Optimization for Continual Learning. *arXiv, 2024*. [\[Paper\]](#)

K. Javed, M. White, Y. Bengio. Learning Causal Models Online. *arXiv, 2020*. [\[Paper\]](#) [\[Code\]](#)

H. Shah, **K. Javed**, F. Shafait. Distillation Techniques for Pseudo-Rehearsal Based Incremental Learning. *arXiv, 2018*. [\[Paper\]](#)

ENGINEERING SKILLS

Experience writing optimized, multi-threaded code in **C++** and **CUDA**, including custom memory management and performance-critical routines.

Built and deployed large-scale models in **PyTorch** and **TensorFlow**, scaling across multiple nodes and dozens of GPUs.

Developed sparse and dynamically structured neural networks in C++/CUDA for real-time learning systems.

TECHNOLOGIES ([GITHUB](#))

Backend	C/C++, Python, CUDA, WebAssembly
Frontend	TailwindCSS, JavaScript, SwiftUI, Dear ImGui
Tools	Git, Docker, MongoDB, MariaDB, Firebase, Slurm, GCP, Fusion 360, Adobe Illustrator, Photoshop, Blender
Frameworks & Libraries	PyTorch, NumPy, TensorFlow

TEACHING EXPERIENCE

CMPUT 609: Reinforcement Learning II

University of Alberta, Edmonton, Canada

Winter 2022, 2023, 2024

CMPUT 272: Formal Systems and Logic in Computing Science

University of Alberta, Edmonton, Canada

Fall 2018, Winter 2019

Introduction to Machine Learning

National University of Sciences and Technology, Islamabad, Pakistan

Winter 2017

REVIEWING

RLC 2025

TNNLS

ICML 2022

ICML 2021

AAAI 2020

RLDM 2025

TMLR

NeurIPS 2021

NeurIPS 2020

ICML 2020

RLC 2024

T-PAMI

ICLR 2021

ICLR 2020

CONFERENCE ORGANIZATION

Co-organizer and Communication Chair, *RLC 2025*

Co-organizer, Workshop on Self-Supervised Learning and Reinforcement Learning, *ICLR 2021*

INVITED TALKS

Real-time Reinforcement Using Dynamic Networks — *Cohere for AI* (2024)

Real-time Prediction from Sound — *UpperBound 2024, Edmonton, Canada* (2024)

Real-time Reinforcement Learning by Imprinting and Memory Features — *Openmind Retreat, Banff, Canada* (2023)

The Big World Hypothesis and Its Ramifications — *Barbados RL Workshop* (2023)

Towards Scalable Real-Time Learning for Making Robust Intelligent Systems — *CitAI Seminar, University of London* (2021)

Learning Online-Aware Representations Using Neural Networks — *CERN* (2020)

Real-Time Document Localization in Natural Images Using Recursive Application of a CNN — *ICDAR, Kyoto, Japan* (2017)

REFERENCES

Prof. Richard S. Sutton

Professor

University of Alberta

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Prof. Martha White

Associate Professor

University of Alberta

whitem@ualberta.ca

Prof. Adam White

Assistant Professor

University of Alberta

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