

# Muhammad Kamran Janjua

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## EDUCATION

### University of Alberta

*Masters of Science in Computing Science, CGPA 3.80/4.00*

Edmonton, Canada

Sept. 2021 – Jun 2023

Supervisor Prof. Martha White

Thesis Online Predictions, RL and Water Treatment: A GVF Story

### National University of Sciences and Technology (NUST)

*Bachelors of Science in Computer Science, CGPA 3.71/4.00*

Islamabad, Pakistan

Sept. 2016 – Jun 2020

## PUBLICATIONS ([GOOGLE SCHOLAR](#))

(<sup>\*</sup> INDICATES EQUAL CONTRIBUTION)

**Kamran Janjua**, H. Silva, D. Niu, B. Rashidi

Unlocking Visual Tool Reasoning in Language Models via Perception Programs

Under Review

**Kamran Janjua**, A. Wahab, B. Rashidi

Panoptic Pairwise Distortion Graph

Under Review

**Kamran Janjua**, A. Ghasemabadi, Kunlin Zhang, M. Salameh, Chao Gao, Di Niu

Pre-Print

Grounding Degradations in Natural Language for All-In-One Video Restoration

WACV'26

A. Ghasemabadi<sup>\*</sup>, **Kamran Janjua**<sup>\*</sup>, M. Salameh, Di Niu

[Paper](#) / [Code](#) / [Page](#) / [Poster](#)

Learning Truncated Causal History Model for Video Restoration

NeurIPS'24

A. Ghasemabadi, **Kamran Janjua**, M. Salameh, C. Zhou, F. Sun, Di Niu

[Paper](#) / [Code](#)

CascadedGaze: Efficiency in Global Context Extraction for Image Restoration

TMLR'24

**Kamran Janjua**, H. Shah, M. White, E. Miah, M.C. Machado, A. White

[Paper](#) / [Code](#)

GVFs in the Real World: Making Predictions Online for Water Treatment

MLJ'23

Y. Hou, **Kamran Janjua**, J. Kannala, A. Solin

[Paper](#) / [Code](#)

Movement-Induced Priors for Deep Stereo

ICPR'20

S. Nawaz, **Kamran Janjua**, I. Gallo, A. Mahmood, A. Calefati, F. Shafait

[Paper](#)

Do Cross Modal Systems Leverage Semantic Relationships?

ICCV(W)'19

S. Nawaz<sup>\*</sup>, **Kamran Janjua**<sup>\*</sup>, I. Gallo, A. Mahmood, A. Calefati

[Paper](#) / [Code](#)

Deep Latent Space Learning for Cross-Modal Mapping of Audio and Visual Signals

DICTA'19

A. Calefati<sup>\*</sup>, **Kamran Janjua**<sup>\*</sup>, S. Nawaz, I. Gallo

[Paper](#) / [Code](#)

Gitloss for Deep Face Recognition

BMVC'18

## WORK EXPERIENCE

### Edmonton Research Center (ERC), Huawei Technologies Canada Co. Ltd

*Machine Learning Researcher* Jun 2023 – Present

- I conduct research on multimodal learning, with a focus on video understanding. This also includes studying how vision language models can aid towards this goal and/or serve as useful knowledge priors.
- Additionally, I also study methods that learn online from streaming video data.

### Reinforcement Learning and Artificial Intelligence Lab (RLAI)

*Graduate Research Assistant* Sept 2021 – Jun 2023

Advisor Prof. Martha White

- I worked on designing temporal difference learning algorithms (TD) to make online and continual anticipatory predictions in high-volume and non-stationary systems.
- I also studied offline-to-online RL where the goal was to jump-start online RL agents by learning policies offline.

### Qatar Computing Research Institute (QCRI)

*Research Intern* Jan 2021 – Aug 2021

Advisor Prof. Hassan Sajjad

- I worked on understanding how neurons in a deep neural network (either individually or compositionally) work towards reaching a decision from input to the output.

- The work focused on analyzing how a trained architecture's internal state can be explained by mapping it to high-level concepts instead of relying on feature attribution methods.

### Machine Learning Research Group, Aalto University

Jun 2019 – Nov 2019

Advisor Prof. Arno Solin

*Visiting Research Intern*

- I worked on depth estimation from unstructured multi-view image pose pairs. The task was to utilize cheap hardware on mobile devices and estimate depth following a stereo setup. We re-formulated the problem as a non-parametric learning task by introducing a temporal movement-induced Gaussian process prior for inter-frame reasoning. Our proposed gyroscope-driven kernel utilized low-quality MEMS sensors, and lifted the requirement of having full 6D camera poses.

### Applied Recognition Technology Laboratory, University of Insubria

Mar 2018 – Sept 2018

*Visiting Research Intern*

Advisor Prof. Ignazio Gallo

- I worked on multi-modal representation learning, mainly focusing on learning to project multiple modalities (images, audio, text) onto a shared latent space without utilizing multiple neural networks. I also explored the role of semantic relationships in the shared latent space for retrieval and verification tasks.

## TEACHING EXPERIENCE

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### CMPUT 267 - Machine Learning I

Fall 2021, Winter 2022

*University of Alberta, Edmonton, Canada*

### Introduction to Machine Learning

Winter 2020

*National University of Sciences and Technology (NUST), Islamabad, Pakistan*

### Data Structures and Algorithms

Fall 2018

*National University of Sciences and Technology (NUST), Islamabad, Pakistan*

## AWARDS & ACCOLADES

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### Graduate Research Scholarship, University of Alberta

2021-2023

*Fully-funded scholarship for graduate studies (MSc. thesis).*

**Value:** 25,197/yr CAD

### UEAwards 2020, CAMP@TUM, Munich, Germany

Summer 2020

*Undergraduate Excellence Award ([UEAwards](#)) is awarded to top 5 undergraduate students.*

**Value:** 5900 CAD

### UG Star Researcher 2020, NUST, Pakistan

2020

*UGStar Researcher competition across the EECS school. I won the competition and the title.*

**Value:** 150 CAD

### Aalto Science Institute Summer Internship, Espoo, Finland

Summer 2019

*I was awarded the research internship in ML group at Aalto University.*

**Value:** 8900 CAD

### Research Competition, Ulster University, UK

2019

*All Pakistan research poster competition. I won third prize.*

**Value:** 550 CAD

### Dean's List for High Achievers

2016–2020

*All semesters during undergraduate studies.*

**Value:** 550 CAD

## TECHNOLOGIES ([GITHUB](#))

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Backend — Python, C++, SQL

Deep Learning/Machine Learning — PyTorch, Tensorflow, JAX

Tools — Git, SLURM, Bash, Linux Server Management, AWS, GCP

## REVIEW EXPERIENCE

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ICML 2025, ICLR 2025, AAAI PC Member 2025/2026, NeurIPS 2024/2025, CVPR 2024/2025

## REFERENCES

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Prof. Di Niu — Professor, University of Alberta, Edmonton, Canada — [dniu@ualberta.ca](mailto:dniu@ualberta.ca)

Prof. Mohammad Salameh — Assistant Teaching Professor, Carnegie Mellon University — [msalameh@andrew.cmu.edu](mailto:msalameh@andrew.cmu.edu)

Prof. Hassan Sajjad — Associate Professor, Dalhousie University, Halifax, Canada — [hsajjad@dal.ca](mailto:hsajjad@dal.ca)