

M. Kamran Janjua

Curriculum vitae

House # 723, Block G-4, Johar Town
Lahore, Pakistan
☎ +92 (334) 439 5998
✉ mjanjua.bs16seecs@seecs.edu.pk
📄 www.kjanjua26.github.io

Education

- 2016–Present **Bachelor of Science in Computer Science,**
National University of Sciences and Technology (NUST), Islamabad, Pakistan.
CGPA - 3.69/4.00, EECS Statistics - μ : 3.24,
Dean's List for High Achievers
- 2014–2016 **Higher Secondary School Certificate,**
Pakistan International School, Doha, Qatar.
Percentage - 87.6%,
Gold Medal for highest score in school

Publications

- 2020 **Y. Hou, M.K. Janjua, J. Kannala, A. Solin**
Movement-Induced Priors for Deep Stereo,
Under Review at ICPR, 2020.
- 2019 **S. Nawaz, M.K. Janjua, I. Gallo, A. Mahmood, A. Calefati, F. Shafait**
Do Cross Modal Systems Leverage Semantic Relationships?,
International Conference on Computer Vision Workshop on Cross-Modal Learning in Real World (ICCV-CROMOL) [Poster] |Paper|.
- 2019 **M.K. Janjua, S. Nawaz, I. Gallo, A. Mahmood, A. Calefati**
Deep Latent Space Learning for Cross-Modal Mapping of Audio and Visual Signals,
Digital Image Computing: Techniques and Applications [Poster]|Paper|.
- 2018 **M.K. Janjua, A. Calefati, S Nawaz, I. Gallo**
Gitloss for Deep Face Recognition,
British Machine Vision Conference Workshops on Image Analysis for Human Facial and Activity Recognition (BMVC-IAHFAR) [Oral] |Paper| |Code|.
- 2018 **I. Gallo, S Nawaz, A. Calefati, M.K. Janjua**
Image and Visual Text Embedding for Multi-modal Classification,
Digital Image Computing: Techniques and Applications [Poster] |Paper| |Code|.

Research Experience

- 03/20–Present **Research Assistant at Pattern Analysis and Computer Vision (PAVIS), IIT Genoa, Italy.**
PAVIS is a part of the IIT Central Research Labs, Genova. This work is a remote collaboration with one of the Postdoc students at PAVIS, IIT.
- **Language Domain Adaptation for Cross Modal Emotion Transfer**
I am working on designing a universal teacher language network capable of training students to 1) adapt to a different language domain and 2) distil its knowledge captured from one modality to another. The goal is to train a teacher network on one language which adapts each student to a different language in addition to transferring the emotion information from one modality (visual facial features, teacher's modality) to another (audio signals, student's modality).
- 06/19–11/19 **Research Assistant at AaltoVision, Aalto University, Finland.**
AaltoVision is a research laboratory within the Department of Computer Science at Aalto University supervised by Dr. Arno Solin and Dr. Juho Kannala. Following is a roughly chronological overview of my work in the lab.
- **Multi-View Stereo Estimation**
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 worked on lifting the restriction of 6dof pose information as part of ego-motion for depth estimation tasks since it is not generally available on smartphones.
- 03/18–09/18 **Research Assistant at ARTE Lab, University of Insubria, Varese, Italy.**
The Applied Recognition Technology Laboratory (Arte-Lab) is a research laboratory within the Department of Theoretical and Applied Science (DiSTA) at Università degli Studi dell'Insubria supervised by Dr. Ignazio Gallo. Following is a roughly chronological overview of my work in the lab.
- **Multi Modal Deep Learning**
I worked on discriminatory embedding of two different modalities onto a shared latent space. Current approaches employ multiple networks for each modality without working to capture the semantics between them, my work focused on exploring semantic relationships in the shared latent space for improved correlation and retrieval results.
- 2016–Present **Research Assistant at TUKL-NUST Research and Development Center, NUST, Islamabad, Pakistan.**
TUKL-NUST is a research and development center setup by a joint collaboration of TUKL, Germany, and NUST, Islamabad advised by Dr. Faisal Shafait. Following is a roughly chronological overview of my work in the lab.
- **Real Time Scene Text Detection & Recognition**
Optical Character Recognition for scene images is a rather very important and difficult task. My work was to research and implement an end-to-end trainable architecture and deploy it on IOS to achieve real time results. The IOS model runs on 30fps currently.
 - **Underwater Video Data Collection of MahSheer in Murky Waters**
Data collection is an extremely important part of data driven solutions. I was active in a small group working to collect underwater videos of an endangered specie for non-invasive sampling for a project funded by DAAD, Germany. We designed a system to capture underwater videos in the rivers.

2015–2016 **Research Intern at Al Kindi Lab for Computing,**
Qatar University, Doha, Qatar.

Al Kindi Research Lab is a research center focusing on research in the vital area of computer and information sciences and engineering. Following is the detail regarding the project I worked on while interning in the lab.

- **Synchronous Drone System for Building Surveillance**

Real time feedback regarding the under-construction building is crucial to stable construction. I worked on building synchronous drone system for under-construction building surveillance. My work was focused on assembling the drones and synchronizing them. The drones were built using ardupilot flight controller.

Academic Experience

2020– **Teaching Assistant for Machine Learning,**
School of Electrical Engineering & Computer Science, NUST, Islamabad, Pakistan.

I am teaching assistant for the introduction to Machine Learning course for the Spring 2020 semester. My job responsibilities include designing assignments and conducting and designing a competition based on a ML problem (forecasting spread of COVID-19 in Pakistan). Furthermore, I am also responsible for marking exams, assignments, and quizzes.

2020– **Teaching Assistant for Artificial Intelligence,**
School of Electrical Engineering & Computer Science, NUST, Islamabad, Pakistan.

I am teaching assistant for Artificial Intelligence course offered to junior year CS students. My main responsibilities are to grade assignments, quizzes, exams and end semester projects. Additionally, I am responsible for conducting hands-on AI/ML frameworks workshop.

2018–2019 **Teaching Assistant for Data Structures and Algorithms,**
School of Electrical Engineering & Computer Science, NUST, Islamabad, Pakistan.

I was teaching assistant for the basic algorithms and data structures computer science course. My main responsibilities were to grade assignments, quizzes, exams and end semester projects. Additionally, I was responsible for resolving any issue a student might face in the course.

2017–2018 **Teaching Assistant for Fundamentals of Computer Programming,**
School of Electrical Engineering & Computer Science, NUST, Islamabad, Pakistan.

I was teaching assistant for the introductory computer science course. My main responsibilities were to grade assignments, quizzes and end semester projects. Additionally, I had to deliver a brief lecture once a week.

Academic Review Experience

2019 Reviewer for NAACL-HLT, CVPR

2018 Co-Reviewer for ECCV, DICTA, ICET

Extracurricular Experience

2018–Present **Founder, NUST Deep Learning Society, Islamabad, Pakistan.**

I have started this society to promote open research culture specifically in deep learning in my university. The main motive is to develop appreciation of academic literature in the research community. We conduct weekly paper reading sessions related to deep learning research and its industrial applications. The link to society's website: <https://nustdeeplearningsociety.github.io/>

- 2018–2018 **Organizer**, *1st Autumn School on Deep Learning*, Islamabad, Pakistan.
We co-organized Autumn School on Deep Learning with focus on UAV and Real Time Computer Vision with Pakistan Pattern Recognition Society. My responsibilities included setting up YOLOv3 for real time object detection on video feed from UAVs. I also delivered a talk on YOLO's setup on Linux machines. Autumn school's website: <http://www.pprs.org.pk/Autumn/index.html>
- 2016–2017 **Curator/Licensee**, *TEDxPECSchool*, Doha, Qatar.
I was the curator and licensee of the TEDx event at my school which was first of its type.

Awards and Accolades

- 2020 **UEAwards 2020**, *Summer Internship*, CAMP@TUM, Munich, Germany.
The Undergraduate Excellence Awards (UEAwards) is awarded to top 5 international undergraduate students (<http://campar.in.tum.de/Events/UndergraduateEA2020>).
Value: 4500 EUR. Acceptance Rate: \approx 2%. [Funded]
- 2020 **UG Star Researcher**, *NUST*.
NUST hosted UGStar Researcher competition across the EECS school. I won the competition and the title. **Value: 100 USD**
- 2020 **Ulster University**, *Research Competition*, All Pakistan.
I competed in all Pakistan research competition hosted by Ulster university, UK and got 3rd prize. **Value: 400 USD**
- 2019 ICCV-19 Student Travel Grants. **Value: 600 USD.**
- 2019 **Aalto University**, *Summer Internship*, School of Computer Science.
I was selected for an research internship position with Dr. Juho Kannala (<https://users.aalto.fi/~kannaljl/>) and Dr. Arno Solin (<https://users.aalto.fi/~asolin/>).
Value: 6000 EUR.
- 2019 **UEAwards 2019**, *Summer Internship*, CAMP@TUM, Munich, Germany.
The Undergraduate Excellence Awards (UEAwards) is awarded to top 5 international undergraduate students (<http://campar.in.tum.de/Events/UndergraduateEA2019>).
Value: 4000 EUR. Acceptance Rate: \approx 2%. [Funded] [Passed]
- 2018 AAI-19 Volunteer Scholarship [Partially Funded]
- 2018 Awarded TITAN-X GPU by NVIDIA
- 2018 Tsinghua's Deep Learning Summer School [Funded] [Passed]
- 2018 Summer Internship in University of Insubria, Varese [Fully Funded]
- 2018 Summer Internship at Sharif University of Technology, Tehran [Passed]
- 2016 - Dean's list for high achievers (all semesters)
- 2016 Gold Medal, HSSC-II, 1st in batch
- 2015 Silver Medal, SSC-II, 2nd in batch

Standardized Scores

- IELTS 8.5 Listening. 8.0 Reading. 7.0 Writing. 7.5 Speaking.
- ACT 27 overall.
- ACT Writing 36/36.

Skills

C, C++ I can program in C and C++ well. I did my data structure's coursework and project in C++. Code: <https://github.com/kjanjua26/Algorithms>.

Python, NumPy, OpenCV Python combined with NumPy is my primary framework for rapid prototyping and almost all of the research work done in lab is in Python. OpenCV is my go to library for image processing tasks.

TensorFlow, PyTorch, Keras I use Keras and Tensorflow to train models on CPU and GPUs in the past. Recently, I have shifted to PyTorch because I find the dynamic graph generation extremely convenient.

Linux, Vim, Bash I managed a Linux based multi-GPU server of TUKL-NUST Lab for a period of almost 6 months.

Projects

PolypDetect This was my semester project for Artificial Intelligence course. It was a tool to simultaneously detect polyps from video capsule endoscopy (VCE) without manual intervention from doctors: <https://github.com/kjanjua26/PolypDetect>

Badger This was my semester project for Advanced Programming course. It was a stock analysis tool built to analyze stock variations. Sentiment analysis on news articles, and tweets against the stock was done. Furthermore stock trend prediction was also formed and a joint market index was computed which explained the market trend for a given stock: <https://github.com/kjanjua26/CommunistBadger>

PiedPiper This was my semester project for Fundamentals of Information and Communication Technologies. It was a security tool for analyzing flaws in emails sent over my university hostel domain.

MOOCs

- Learning from Data
- Convolutional Neural Networks for Visual Recognition
- Deep Learning with Tensorflow
- Deep Learning for Self Driving Cars
- Multiview Geometry
- Statistics 110: Probability
- Convex Optimization