

Tooba IMTIAZ

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EDUCATION

FALL 2021 - PRESENT	PhD Candidate , ELECTRICAL ENGINEERING, <i>Northeastern University</i> , Boston	Advisor: Prof. Jennifer Dy
2018 - 2020	Masters , ELECTRICAL ENGINEERING, (GPA: 3.87/4.3) <i>Korea Advanced Institute of Science and Technology (KAIST)</i> , S. Korea	Advisor: Prof. In-So Kweon
2014 - 2018	Bachelors , ELECTRICAL ENGINEERING, (GPA: 3.93/4.0, Rank: 5 th /156) <i>National University of Sciences and Technology (NUST)</i> , Pakistan	Advisor: Prof. Faisal Shafait

WORK EXPERIENCE

SEP 2024 - PRESENT	Student Researcher GOOGLE <i>Cambridge, MA</i> <ul style="list-style-type: none">Continuing research as an extension of my internship project for Project Starline.Focusing on advancing the state-of-the-art for novel view synthesis to contribute to the broader 3D vision research community.
MAY 2024 - AUG 2024	Research Intern GOOGLE <i>Playa Vista, CA</i> <ul style="list-style-type: none">Worked on novel-view synthesis for Project Starline.Proposed feed-forward architecture achieved plausible quantitative and qualitative results, despite its simplicity.
SEP 2021 - PRESENT	Research Assistant MACHINE LEARNING LAB @ SPIRAL , <i>Northeastern University, Boston</i> <ul style="list-style-type: none">Contributed to a regularization-based approach for improving continual learning ("STAR", ICLR 2025)Developed an optimization-based sparse adversarial attack on images and evaluated its interpretability. ("SAIF", Pre-print)Implemented Nerf-based 3D scene reconstruction from phone camera videos to facilitate at-home patient health monitoring.Formulated a clustering-based loss to improve the performance of 3D-object detection from multiview 2D inputs.
SPRING 2023	Teaching Assistant EECE7397 Advanced Machine Learning, Northeastern University
SEP 2020 - AUG 2021	External Consultant for ML and AI ENDRESS+HAUSER , <i>Maulburg, Germany</i> <p>Proposed ML and CV-based solutions for process automation and optimization. Led two projects, both deployed to production:</p> <ul style="list-style-type: none">Deep learning for unsupervised 3D classification: used Autoencoders, Capsule architectures, and Implicit Neural Networks.Forecasting on time series: utilized DNNs and Temporal Transformers to predict compound concentrations in liquids using sensors measuring base physical quantities. Achieved ~ 96% accuracy w.r.t. specialized physical sensors.
SEP 2018 - AUG 2020	Research Assistant ROBOTICS AND COMPUTER VISION LAB , <i>KAIST, South Korea</i> <ul style="list-style-type: none">Bosch-RCV Project: Performed camera calibration, data collection, and vehicle trajectory estimation. Designed an occlusion-robust vehicle re-identification method using GANs for seamless tracking across a multi-camera surrounding awareness system.Universal Adversarial Perturbations: Developed novel adversarial attack algorithms. Published at CVPR, AAAI, and ACCV '20.
SEP 2015 - MAY 2018	Research Intern TUKL-NUST R&D CENTRE , <i>NUST, Pakistan</i> <ul style="list-style-type: none">Proposed table detection and parsing in document images using ML and CV (LSTMs, text classification, clustering algorithms).Implemented LSTMs for handwritten address recognition to sort postal mail.

PUBLICATIONS

[STAR: Stability-Inducing Weight Perturbation for Continual Learning](#) | ICLR 2025

M. Eskander, T. Imtiaz, D. Hill, Z. Wang, J. Dy

[ADAPT to Robustify Prompt Tuning Vision Transformers](#) | TMLR 2025

M. Eskander, T. Imtiaz, Z. Wang, J. Dy

[SAIF: Sparse Adversarial and Imperceptible Attack Framework](#) | Under review

T. Imtiaz, M. Kohler, J. Miller, Z. Wang, M. Sznajder, O. Camps, J. Dy

[Volumetric propagation network: Stereo-lidar fusion for long-range depth estimation](#) | IEEE RA-L 2021

J. Choe, K. Joo, T. Imtiaz, I.S. Kweon

[Understanding Adversarial Examples from the Mutual Influence of Images and Perturbations](#) | CVPR 2020

C. Zhang*, P. Benz*, T. Imtiaz, I.S. Kweon

[CD-UAP: Class Discriminative Universal Adversarial Perturbation](#) | AAAI 2020

C. Zhang*, P. Benz*, T. Imtiaz, I.S. Kweon

[Double targeted universal adversarial perturbations](#) | ACCV 2020

P. Benz*, C. Zhang*, T. Imtiaz, I.S. Kweon

SCHOLARSHIPS AND AWARDS

2020	Qualcomm Innovation Fellowship Award, South Korea (among the 20 awardees)
2014-2018	NUST Merit Scholarship (Awarded to top-3 GPA holders of cohort)
2017	Global UGRAD Exchange Program, US Dept of State (~ 7.6% selection rate)

SKILLS

PYTHON	JAX, PyTorch, Tensorflow, Keras, Numpy, scikit-learn, cuda, Matplotlib
C / C++ / JAVA	Object-oriented programming, Data structures, frontend and backend dev
Misc.	MATLAB, Unix, gcc, Git, SQL, \LaTeX , ROS, AutoCAD

ACADEMIC SERVICE

WORKFLOW CHAIR	AAAI 2024 <ul style="list-style-type: none">- Managed the AAAI 2024 paper review process for 12,100 submissions, working with 7k reviewers, 765 senior program committee (SPC), and 320 area chairs (AC).- Used topic modeling and text similarity to determine reviewer, SPC, and AC assignments.
CONFERENCE REVIEWER	ICLR 2025 , ECCV 2024 , CVPR 2024 , ICCV 2023 , NeurIPS 2023 (New in ML Workshop)
VOLUNTEER	ICML 2022