

TAIMOOR TARIQ | Curriculum Vitae

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ABOUT ME

PhD student interested in the intersection of human perception and computer graphics; currently working on making real-time Virtual Reality (VR) realistic through a deeper understanding of human vision. Interested and skilled in many facets of understanding, quantifying and maximizing image/video quality (spatial, motion/temporal, color, stereo, luminance, HDR, display etc) for capture (camera and image processing pipeline), synthesis (rendering and graphics pipeline) and display (computational display)

EDUCATION

UNIVERSITÀ DELLA SVIZZERA ITALIANA (USI)

PhD in Computer Science

Concentration: Computer Graphics and Human Visual Perception

2020 - current

Lugano, Switzerland

KOREA ADVANCED INSTITUTE OF SCIENCE AND TECHNOLOGY (KAIST)

MS in Electrical Engineering

Concentration: Visual Computing and Machine Learning

CGPA: 4.0/4.3

KAIST Graduate Fellowship Awardee

2017 - 2019

Daejeon, South Korea

NATIONAL UNIVERSITY OF SCIENCES AND TECHNOLOGY (NUST)

BS in Electrical Engineering

Concentration: Digital Systems and Signal Processing

CGPA: 3.83/4.0

Merit Scholarship Awardee (Top 3% of class)

2013 - 2017

Islamabad, Pakistan

EXPERIENCE

RESEARCH SCIENTIST INTERN

Meta (formerly Facebook)

Mentors: Alex Chapiro*, Ajit Ninan, Nathan Matsuda, Douglas Lanman

Working with the Applied Perception Science and Display Systems Research teams at Facebook Reality Labs; on perceptually optimized computational display algorithms for real-time VR systems

10/2022 - 6/2023

Sunnyvale, California, USA

DOCTORAL RESEARCH ASSISTANT

Perception, Display and Fabrication Group - USI

Mentor: Piotr Didyk

Working on understanding human visual perception in immersive environments to improve real-time rendering for VR-headsets

2020 - current

Lugano, Switzerland

GRADUATE RESEARCH ASSISTANT

Video and Image Computing Lab - KAIST

Mentor: Munchurl Kim

Worked on making neural networks aware of the intricacies of human visual perception, with a specific focus on CNN based Image Restoration/Enhancement.

2017 - 2019

Daejeon, South Korea

UNDERGRADUATE RESEARCH ASSISTANT

Neuro-informatics Research Group - NUST SEECs

Mentor: Awais Kamboh

Designed real-time signal processing algorithms and their corresponding digital architectures for implantable neural chips

2016 - 2017

Islamabad, Pakistan

RESEARCH INTERESTS

Visual Perception, Computer Graphics, Computational Displays, Computational Photography, Real-Time Rendering, Augmented/Virtual Realities

TEACHING

Teaching Assistant: Computer Graphics (Fall 2020, Fall 2021, Fall 2023), USI-Lugano

Teaching Assistant: Computer Vision & Pattern Recognition (Spring 2021, Spring 2022)

Teaching Assistant: Image & Video Processing (Spring 2023), USI-Lugano

PUBLICATIONS

Perceptually Adaptive Real-Time Tone Mapping

SIGGRAPH Asia 2023

Taimoor Tariq, Nathan Matsuda, Eric Penner, Jerry Jia, Douglas Lanman, Ajit Ninan, Alexandre Chapiro

Noise-based Enhancement for Foveated Rendering

ACM Transactions on Graphics (SIGGRAPH 2022)

Taimoor Tariq, Cara Tursun and Piotr Didyk

Why are Deep Representations Good Perceptual Quality Features?

European Conference on Computer Vision (ECCV 2020)

Taimoor Tariq, Okan Tarhan Tursun, Munchurl Kim and Piotr Didyk

A HVS inspired Attention to Improve Loss Metrics for CNN-based Perception-Oriented Super-Resolution

International Conference on Computer Vision Workshops (ICCVW 2019)

Taimoor Tariq, Juan Luis Gonzalez Bello and Munchurl Kim

Computationally Efficient Fully-Automatic Online Neural Spike Detection and Sorting in presence of Multi-Unit activity for Implantable Circuits

Computer Methods and Programs in Biomedicine, 2019

Taimoor Tariq, Muhammad Hashim Satti, Hamid Mehmood Kamboh, Maryam Saeed and Awais Mehmood Kamboh

Low SNR Neural Spike Detection using Scaled Energy Operators for Implantable Brain Circuits

IEEE Engineering in Medicine and Biology Conference (EMBC 2017)

Taimoor Tariq, Muhammad Hashim Satti, Maryam Saeed and Awais Mehmood Kamboh