

M. TWAHA N. IBRAHIM

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Education:

UC IRVINE *School of Information and Computer Science*, Irvine, CA **Sept 2017 - Present**
Doctorate in Computer Science GPA: 3.95

Relevant courses: Image Understanding, Visual Computing, Computer Vision, Machine Learning, Algorithm Analysis, Computer Networks, Embedded Systems,

- Research Focus: Projection-based augmented reality for creating interactive 3D experiences

CORNELL UNIVERSITY *College of Engineering*, Ithaca, NY **May 2014**
Master of Electrical and Computer Engineering GPA: 3.79

Relevant courses: Computer Vision, Computer Architecture, Artificial Intelligence, Parallel Computing, Large-Scale Information Systems, Evolutionary Algorithms, Technical Management

- MEng Project: Quadcopter control using Computer Vision techniques
- Computer Vision Projects: Intelligent Scissors, Image Feature Extraction, Panorama Stitching, Single-View Modelling, Automatic Person Detection
- Computer Architecture Project: Design and Analysis of Single & Quad-core Processor with Instruction & Data caches connected via Ring Networks
- Other projects: Server scalability & fault tolerance on AWS, Parallel smooth particle hydrodynamics simulation

NATIONAL UNIVERSITY OF SCIENCE & TECHNOLOGY (NUST), Pakistan **Sept. 2011**
Bachelor of Computer Systems Engineering GPA: 3.68

Relevant courses: Image Processing, Operating Systems, Software Engineering, Data Structures, Database Systems, Algorithms

- Recipient of NUST High Academic Achievers Scholarship in every semester
- Awarded Commandant's Plaque of Excellence for Outstanding Students from 150 students
- Final Year Project: Digital Drawing Board; Appointed team lead; Runner-up in Microsoft Pakistan Imagine Cup 2011
- Other Projects: Optical disk extraction from retinal images, OpenGL-based Origami simulation software, Pharmaceutical database management software

Work Experience:

SUMMIT TECHNOLOGY LABORATORY., Irvine, CA **Sep 2020 – Present**
Researcher & GPU Programmer

- Researched and developed algorithms for creating high-resolution, seamless multi-projector display systems
- Improved system runtime efficiency by 60% through exploiting GPU and multi-threading paradigms
- Presented results to the team; advised on new methods to further improve system efficiency
- Responsible for managing team of engineers and interns to develop new algorithms and modules

GOOGLE LLC., Venice, CA **Jun 2018 – Sep 2018**
Software Developer Intern

- Designed, developed, and evaluated a face recognition system using deep learning and convolutional neural networks
- Presented results to the team; recommended potential ways to further improve recognition

EPIC SYSTEMS INC., Verona, WI **Apr 2015 – May 2017**
Software Developer

- Responsible for designing, developing, and maintaining Epic's surgery management software suite
- Visited customer sites to provide support and gather requirements for designing new functionality

FUTUREWEI (HUAWEI) TECHNOLOGIES INC., Bridgewater, NJ **Jul 2014 – Jan 2015**
Research Intern

- Researched on panoramic video and super resolution cameras using Raspberry Pi boards

Research Assistant and Teacher Assistant

- Researched in computer vision and image stitching algorithms; responsible for developing image stitching software in a joint project with ETRI (South Korea)
- Published one conference paper, one journal paper and filed one patent
- Co-developed and managed Verilog labs for 75 students at graduate and undergraduate levels

Technical Skills:

Programming Languages: C/C++, C#, Java, Python, MATLAB & Verilog

Libraries: TensorFlow, OpenCV, familiar with SQL, JSP, OpenMP, OpenMPI, ASP.NET & OpenGL

Publications:

- Thakur, S., Urs, M., **Ibrahim, M.T.**, Sidenko, A. and Majumder, A. “*Ambient Light Tolerant Laser-Pen Based Interaction with Curved Multi-Projector Displays*”. Accepted for publication in Human-Computer Interaction (HCI) Conference, 2022.
- **Ibrahim, M. T.**, Majumder A and Gopi, M. “*Dynamic projection mapping on deformable stretchable materials using boundary tracking*”. Computers & Graphics. Online publication date: 1-Jan-2022.
- Vyas, R. M., **Ibrahim, T.**, Sayadi, L. R., Chahine, E., Annan, B., Hamdan, U., Majumder, A. *Combining AI and AR for Knowledge and Skill Transfer in Cleft Surgery*. 4th International Comprehensive Cleft Care Workshop. Istanbul, Turkey. October 2021.
- **Ibrahim, M. T.**, Gopi, M., Majumder, A., “*Dynamic Projection Mapping of Deformable Stretchable Materials*”, VRST '20: 26th ACM Symposium on Virtual Reality Software and Technology, November 2020, Article No.: 35, Pages 1–5.
- **Ibrahim, M. T.**, Hafiz, R., Khan, M. M., Cho, Y., “*Automatic Selection of Colour Reference Image for Panoramic Stitching*”, Springer Multimedia Systems Journal (MMSJ) 2016, Vol. 22, pp 379-392.
- **Ibrahim, M. T.**, Hafiz, R., Khan, M. M., Cho, Y., Cha, J., “*Automatic Reference Selection for Parametric Colour Correction Schemes for Panoramic Video Stitching*”, Int. Symposium on Visual Computing, 2012, Part 1, LNCS 7431, pp. 492-501.

Patents:

- Application No. US20210295466A1: *Shape conforming projections of medical information*.
- Application No. US10003740B2: *Increasing spatial resolution of panoramic video captured by a camera array*
- Application No. US20140071228A1: *A method for Color correction apparatus for panorama video stitching and method for selecting reference image using the same*.

Extracurricular activities:

UC IRVINE GRAD SLAM FINALIST, UC Irvine

Mar 2022

- One of ten participants selected from the entire graduate student body at UC Irvine.
- Presented my research in easily understandable terms to a live audience in 3 minutes.

STUDENT CENTER BOARD OF ADVISORS, UC Irvine

Aug 2019 – Present

Secretary (2019), Chair (2020) & At-Large Member (Current)

- *Secretary:* Responsible for taking meeting minutes, recording & ensuring member attendance and assisting the chair in organizing Board meetings
- *Chair:* Responsible for reviewing Board member applications, leading the Board through the COVID-19 pandemic, organizing events to keep the UCI student body engaged with campus during the pandemic. I also led the effort to update the Board guidelines to reflect the current student priorities.
- *At-Large Member:* Responsible for representing the UCI student body, organize events to support and engage our students across campus.

GRADUATE INTERCONNECT PEER MENTOR, UC Irvine

Aug 2020 – Dec 2021

Peer Mentor (2020) & Senior Peer Mentor (2021)

- As Peer Mentor, I was responsible for reaching out to and engaging with incoming international graduate students, help them acclimate to the US and UC Irvine and set them up for academic and professional success.
- As Senior Peer Mentor, I was additionally responsible for managing a team of 10 Peer Mentors, organizing events like game nights and pizza parties to help our mentees adjust to their new environment.

ASSOCIATION OF GRADUATE STUDENTS, UC Irvine

Council Member Elect, Computer Science

Aug 2020 – Present

- Responsible for representing Computer Science at the Graduate Student Council.
- Serve on the Professional Development Committee and Council on Education Policy.