Razeen Hussain

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About Me

- An experienced and passionate researcher with expertise in cutting-edge tracking and immersive technologies. Eager to contribute to a dynamic and innovative organization. Open to relocation.

Work Experience

2022 – Present **Researcher**, University of Genoa, Genoa, Italy.

- *Developed and implemented cutting-edge solutions to enhance visual perception within virtual environments, meticulously fine-tuning the immersive experience to closely mirror real-world interactions.*
- *Partnered with industrial collaborators to create an OCR (Optical Character Recognition) application tailored specifically for the Microsoft Hololens 2, utilizing its unique capabilities within the AR domain.*
- *Applied photogrammetry techniques proficiently to reconstruct 3D objects, ensuring high-quality and accurate models for seamless integration into AR/VR applications.*
- *Collaborated closely with Côte d'Azur University to design and develop the Choisis! game, leveraging Unity as the primary development platform. This game aimed to assess apathy and was compatible with Android and WebGL platforms.*
- *Collaborated with TU Dresden to assess the efficacy of spatial blurring in both passive and active VR scenarios.*
- *Evaluated various foveation techniques applied to VR environments with a focus on the naturalness of the output.*
- *Provided comprehensive supervision to multiple undergraduate and master's students, specifically focusing on research and development of serious games and VR applications.*

2017 – Present **Consultant – Freelance** (Robotics and Virtual Reality).

- *Collaborated as part of a technology scouting team to identify and evaluate the latest advancements in software and hardware technologies relevant to XR, AI and robotics.*
- *Contributed to the development of a VR-based remote operator training application, incorporating software and hardware components to create a robust immersive training environment.*
- *Designed and implemented a vision-based algorithm for aerial detection of high-tension wires, utilizing software development skills to enhance safety measures.*
- *Led the development of a software architecture for a domestic cleaning robot, ensuring efficient integration and interaction between various software and hardware components.*
- *Conducted thorough research and analysis to identify optimal software and hardware solutions for each project, considering factors such as performance, compatibility, and cost-effectiveness.*

2020 – 2022 **Teaching Assistant**, University of Genoa, Genoa, Italy.

- *Collaborated with course instructors to facilitate lab sessions, guiding students in practical exercises and assignments related to Augmented Reality (MSc Computer Science), Computer Vision (MSc Robotics Engineering) and Object-Oriented Programming (BSc Biomedical Engineering).*
- *Contributed to the grading process, evaluating assignments and exams in a fair and consistent manner. Provided constructive feedback to students, helping them understand areas for improvement and encouraging their growth and learning.*

Work Experience (continued)

2018 – 2022 **PhD Researcher**, University of Genoa, Genoa, Italy.

- *Led a research project focused on advancing techniques to modify visual stimuli in immersive media devices, specifically targeting the improvement of cybersickness and depth perception. This involved exploring innovative approaches and conducting experiments to validate the effectiveness of the proposed solutions.*
- *Provided comprehensive supervision and guidance for multiple undergraduate and master's theses, serving as a mentor and subject matter expert. Assisted students in defining research objectives, developing methodologies, analyzing data, and presenting their findings, ensuring the successful completion of their academic projects.*
- *Effectively transitioned to online and remote work during the COVID-19 restrictions, ensuring seamless continuity of work and maintaining productivity in a challenging and rapidly changing environment. Adapted to virtual collaboration tools and platforms, effectively communicating and collaborating with team members and stakeholders remotely.*

Summer 2014 **Supply Chain Intern**, Unilever Pakistan Limited, Lahore, Pakistan.

- *Designed a comprehensive machine ledger for the Viking Cup Dispenser, creating an organized and accessible system for tracking and documenting machine maintenance activities. The ledger allowed for efficient monitoring of maintenance schedules, log entries for repairs and adjustments, and recording of spare parts usage.*
- *Conducted critical spare parts analysis for the production line, identifying key components that significantly impact the reliability and uptime of the machinery. Through thorough analysis, determined optimal inventory levels and recommended strategic procurement practices to ensure the availability of critical spare parts when needed.*

Summer 2013 **Engineering Intern**, Pakistan Oilfields Limited, Khaur, Pakistan.

- *Contributed to the maintenance of natural gas generators, Variable Frequency Drives (VFDs), and Programmable Logic Controllers (PLCs) at Pariwali Production Facilities. Collaborated with the maintenance team to ensure the smooth operation and reliability of these critical equipment.*
- *Collaborated with the maintenance team to ensure compliance with safety protocols and adherence to maintenance schedules. Actively participated in scheduled maintenance activities, including inspections, cleaning, and testing of equipment to prevent potential failures and maintain optimal performance.*

Education

2018 – 2022 **Ph.D. Computer Science**
University of Genoa, Italy
Thesis Title: *Towards Achieving Natural Visual Experience in Immersive Virtual Environments: Addressing Cybersickness and Depth Perception.*

2015 – 2017 **European Master on Advanced Robotics**
University of Genoa, Italy and Warsaw University of Technology, Poland
GPA: *108/110 & 4.73/5.00*
Thesis Title: *Investigation of design methods for developing the control system for walking machine.*

2011 – 2015 **B.E. Mechatronics Engineering**
National University of Sciences and Technology, Pakistan
GPA: *3.99/4.00*
Thesis Title: *Development of an EEG controlled 6 degree of freedom upper limb prosthesis.*

Skills

Coding	C/C++, C#, Python, Unity, UnrealEngine, MATLAB, Cg/HLSL, TensorFlow, PyTorch, OpenCV, EyesWeb, Git.
AR/VR	MRTK, Shaders, WebGL, XR Interaction Toolkit, SteamVR, Serious Games, Haptics, Gaze Tracking, Hand Tracking, UI/UX Design.
Robotics	Robot Operating System (ROS), CoppeliaSim, Motion Tracking, HCI/HMI.
CAD/CAM	Blender, MeshLab, Creo, SolidWorks.
Languages	English (C2); Italian (A2); Urdu (Native).

Trainings and Certifications

2023	Data Science Summer School by Hertie School Data Science Lab.
2021	Getting started with machine learning and simulation with Unity by Unity Technologies.
2020	Unity AI Summit (Industrial Track) by Unity Technologies.
2019	International Computer Vision Summer School by University of Catania.
	Machine Learning Crash Course by University of Genoa.
2018	Regularization Methods for Machine Learning by University of Genoa.
	Machine Learning by Stanford University on Coursera.

Awards and Achievements

2024	Session Chair at HUCAPP 2024 conference.
	Program Committee Member at AIVR 2024 & iLRN 2024 conferences.
2022 – 2024	Cultore della materia at UNIGE-DIBRIS.
	Reviewer for journals (Virtual Reality, IEEE THMS & IEEE CGA) and conferences (ACVR 2023 & IPAS 2022).
2022	Session Chair & Local Arrangement Chair at IPAS 2022 conference.
2020	1st position in EndoVis-SurgVisDom Challenge (Category II) at MICCAI 2020.
2018 – 2021	University scholarship holder for UNIGE doctoral program.
2015 – 2017	Consortium scholarship holder for EMARO+ erasmus mundus master program.
2015	President's Gold Medal for Best in Academics.
	Rector's Gold Medal for Best Final Year Project.
2011 – 2015	Merit-based scholarship holder for NUST mechatronics engineering program.
2014	2nd runner up in National Engineering and Robotics Contest 2014.
	2nd runner up in RoboNav competition held under Punjab Youth Festival 2014.
2013	Delivered workshop on ROBOTC.
2012	Member publication and promotion team of IEEE ICRAI 2012 conference.

References

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