

## PERSONAL INFORMATION

**Shoaib Rehman Soomro**

📍 Electronic Engineering Department, Mehran University of Engineering and Technology, Jamshoro, Sindh, Pakistan.

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Sex: Male | Date of birth: 02/10/1990 | Nationality: Pakistan

## RESEARCH INTERESTS

Visual Optics, Visual Simulators, 3D Displays & Imaging Systems, Wearable Optical Systems

## WORK EXPERIENCE

January 2019 – Date

**Assistant Professor**

Electronic Engineering Department, Mehran University of Engineering and Technology, Pakistan

February 2022 – October 2022

**Optical Engineer/Postdoctoral Researcher**

Voptica S.L, Murcia, Spain

August 2018 – January 2019

**Assistant Professor**

Electrical Engineering Department, Bahria University, Karachi Campus, Pakistan

September 2013 – February 2018

**Research and Teaching Assistant**

Optical Microsystems Laboratory, Koç University, Istanbul, Turkey

August 2012 – August 2013

**Lab Engineer**

Electrical Engineering Department, Bahria University, Karachi Campus, Pakistan

▪ Replace with main activities and responsibilities

## EDUCATION

September 2013 - February 2018

**PhD in Electrical and Electronics Engineering**

Graduate School of Science and Engineering, Koç University, Istanbul, Turkey

▪ *Dissertation Title: Augmented Reality 3D Display and Light Field Imaging Systems Based on Passive Optical Surfaces*

September 2008 – July 2012

**Bachelor of Engineering (BE) in Telecommunication**

Department of Electrical Engineering, Sukkur IBA University, Pakistan

## TRAININGS AND EXCHANGE VISIT

July 2016

**Visiting Student Researcher**

Microelectronics Systems Laboratory (MSL), Swiss Federal Institute of Technology, Lausanne, Switzerland.

June 2011 – July 2011

**Summer Intern**

Multimedia-Broadband Department, Pakistan Telecommunication Company Limited (PTCL), Pakistan

June 2010 – July 2010

**Summer Intern**

Aircraft Radio Engineering and Maintenance, Pakistan International Airlines (PIA), Karachi, Pakistan

**PERSONAL SKILLS**

Mother tongue(s) Sindhi, Urdu

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	Proficient	Proficient	Proficient	Proficient	Proficient
Turkish	Basic	Basic	Basic	Basic	Basic

**Communication skills**

- Strong presentation skills with proven record of presenting at international venues, conducting workshops and delivering lectures.
- Technical and academic writing skills with proven record of writing research articles, project grant proposals and technical reports.

**Organisational / managerial skills**

- Interpersonal, time management, analytical, organizational and leadership skills.
- Go-getter attitude with an ability to grasp new ideas, concepts, tools and methods.

**Technical skills**

- Proficiency in Python, MATLAB and C/C++ programming
- Proficiency in Non-Sequential Optical Modelling Using Zeemax OptStudio
- Rapid Prototyping and 3D Printing
- Hands-on skill of working with optical setups and optomechanical components.
- Familiarity with Inkscape, Blender and COMSOL-Multiphysics,
- Proficiency in Image Processing and 3D Vision using OpenCV
- Familiarity with single board computers: Arduino, Raspberry-Pi

**Computer skills**

- Good Command on Microsoft Office™ tools and Microsoft Windows platform.
- Hands-on experience of working with photo and video editing tools

**PUBLICATIONS****Journal Article Publications**

1. Lal M., Baloch S.K., **Soomro S.R.**, "Integrated Multi-view 3D Image Capture and Motion Parallax 3D Display System" EMITTER International Journal of Engineering Technology, 10 (1), 2022.
2. **Soomro S.R.**, Urey H., "Visual acuity response when using 3D head-up-display in the presence of accommodation-convergence conflict" Journal of Information Display, 21(2), 93-101 (2020). (I.F 2.9)
3. **Soomro S.R.**, Urey H., "Integrated 3D Display and Imaging Using Dual Purpose Passive Screen and Head-mounted Projectors and Camera" Optics Express 26(2): 1161-1173 (2018). (I.F 3.89)
4. **Soomro S.R.**, Urey H., "Light-efficient Augmented Reality 3D Display using Highly Transparent Retro-reflective Screen", Applied Optics 56 (22): 6108-6113 (2017). (I.F 1.98)
5. **Soomro S.R.**, Ulusoy E., Urey H., "Decoupling of real and digital content in projection based augmented reality systems using time multiplexed image capture". Journal of Imaging Science and Technology, 61(1): 10406-1-6 (2017). (I.F 0.4)
6. **Soomro S.R.**, Urey H., "Design, Fabrication and Characterization of Transparent Retro-reflective Screen". Optics Express 24 (21): 24232-24241(2016). (I.F 3.89)

**International Patents**

1. Urey H., **Soomro S.R.**, "Physical Object Reconstruction Through a Projection Display System" US Patent US10739670. (Granted: August 2020).
2. Urey H., **Soomro S.R.**, Eralp M., "A Dual-Function Display and Multi-View Imaging System", US Patent US10531070. (Granted: January 2020).

## Conference Presentations and Proceedings

1. Shaikh Z.A, Hussain S.A., Bhangwar S.A., **Soomro S.R.**, "Projection Type Interactive Head-up Display Based on Retroreflective Surface and Leap Motion" 6th International Multitopic ICT Conference, Pakistan (2021).
2. **Soomro, S.R.**, Eldes, O., Urey H., "Towards Mobile 3D Telepresence Using Dual-purpose Screens and Head-worn Devices", In IEEE Virtual Reality and 3D Interfaces, Munich, Germany (2018)
3. Hedili M.K., Ulusoy E., Kazempour S., **Soomro S.R.**, Hakan Urey "Next Generation Augmented Reality Displays, IEEE Sensors (2018)
4. **Soomro, S.R.**, Eldes O., Aksit K., Urey H., "Mobile 3D Imaging using Handheld Lens Array Surface and Single Camera", IS&T Electronic Imaging, San Francisco, CA, USA (2018).
5. **Soomro S.R.**, Urey H., "Desktop Size See-through Screens for 3D Augmented Reality". In International OSA Network of Students, Paris, FR (2017).
6. **Soomro S.R.**, Urey H., "Augmented Reality 3D Display Using Head-Worn Projectors and Passive Screens" In Fotoniks 2017: 19th National Workshop on Optics, Electro-Optics and Photonics, Istanbul, TR (2017).
7. Urey H., **Soomro S.R.**, Ulusoy E., "Wearable Augmented Reality Displays". In OSA Imaging and Applied Optics Congress, DM4F.2, Los Angeles, CA, USA (2017).
8. **Soomro S.R.**, Urey H., "Augmented reality 3D display using head-mounted projectors and transparent retro-reflective screen". Proc. SPIE 10126E-1, In Advances in Display Technologies VII, San Francisco, CA, USA (2017).
9. **Soomro S.R.**, Ulusoy E., Eralp M., Urey H., "Dual purpose passive screen for simultaneous display and imaging", Proc. SPIE 10126N-1, In Advances in Display Technologies VII, San Francisco, CA, USA (2017).
10. **Soomro S.R.**, Urey H., "Retro-reflective Characteristics of Transparent Screen for Head Mounted Projection Displays". In Annual OSA meeting: Frontiers in Optics, pp FTu5A-2, Rochester, NY, USA (2016).
11. Genç, Ç., **Soomro, S.R.**, Duyan, Y., Ölçer, S., Balci, F., Ürey, H. and Özcan, O., "Head Mounted Projection Display & Visual Attention: Visual Attentional Processing of Head Referenced Static and Dynamic Displays while in Motion and Standing". In Proceedings of the CHI Conference on Human Factors in Computing Systems, pp. 1538-1547, Denver, CO, USA (2016).
12. **Soomro S.R.**, Javed M.A., Memon F.A., "Vehicle Number Recognition System for Automatic Toll Tax Collection". In IEEE international conference on robotics and artificial intelligence, pp. 125-129, Islamabad, PK (2012).

## ADDITIONAL INFORMATION

## Projects

- Worked as Research Assistant / Early Stage Researcher on European Research Council's (ERC) project under (FP7/2007-2013) / ERC advanced grant agreement (340200) awarded to Prof. Hakan Urey at Koç University. PhD research work focused on the design and development of novel 3D display and imaging systems for augmented reality application.
- Principle Investigator (PI) of the project "Point-of-Care Testing and IoT based System for Real-Time Cotton Crop Disease Detection" of worth PKR 3.278 million awarded by Sindh higher Education Commission (2021)

## Honours and Awards

- Student inventor award recipient by Koç University for contributing as co-inventor in two international patents (2016)
- Recipient of fully funded PhD scholarship (2013 to 2018).
- Gold medal recipient in Bachelor of Engineering with first distinction (2013).
- Recipient of fully funded undergraduate scholarship under National ICT Scholarship Program funded by NICTRDF, Ministry of IT, Pakistan (2008-2012).

## Supervised Student Projects

1. "Augmented Reality 3D Display and Multi-view Imaging System", *Saad Memon, Shahid Iqbal and Mubashir Rajpoot (Class of 2021)*
2. "Interactive Windshield Head-up Display", *Zulfiqar Ali, Syed Aftab and Shafat Ali (Class of 2021)*
3. "Motion Parallax 3D Image Capture and Display System for Virtual Museum", *Madan Lal, Ghulam Mustafa and Ameer Bux (Class of 2020)*
4. "Four-view Holographic Display Using Semi-Reflective Mirrors", *Raj Prem, Hamid Ali and Arbelo Khushk (Class of 2020)*
5. "Virtual Reality Based 3D Telepresence Platform", *Soha Laghari, Wajahat Zafar and Noor Muhammad (2019-2020)*

Memberships

- Registered engineer with Pakistan Engineering Council (PEC).
- Former student member of The Optical Society (OSA), International Society for Optics and Photonics (SPIE), and Society of Imaging Science and Technology (I&ST).
- Former office bearer of OSA Student Chapter, Koç University, Turkey (2017).