Dr. Muhammad Faizan Shirazi

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https://scholar.google.co.kr/citations?user=lJSz_DMAAAAJ&hl=en

Education

Kyungpook National University, Daegu, South Korea	2012-18
PhD Scholar at School of Electronics Engineering	CGPA: 4/4.3
NED University of Engineering & Technology, Karachi, Pakistan	2005-09
Bachelor of Electronic Engineering (with distinction)	80.8%
Government Degree Science College Malir Cantt., Karachi, Pakistan	2003-05
Higher Secondary School Certificate	81.7%
Crescent Bahria Cadet College Malir Campus, Karachi, Pakistan	2001-03
Secondary School Certificate	84.7%

Specializations

- Nondestructive industrial application of optical coherence tomography (OCT).
- Cellular resolution imaging of human eye using adaptive optics (AO) OCT.
- Development of clinical optical imaging instruments.
- Biomedical imaging and signal processing.
- Development of wavelength swept laser.

Professional Experience

Assistant Professor	10/2021 - present
NED University of Engineering & Technology, Karachi, Pakistan	
Post-Doctorate Research Fellow	04/2018 - 08/2021
Medical University of Vienna, Vienna, Austria	
Researcher/ Teaching Assistant	03/2012 - 02/2018
PhD Scholar at Kyungpook National University, Daegu, South, Korea	
Instrumentation Engineer	05/2010 - 02/2012
Pak-Arab Pipeline Limited (PAPCO) subsidiary of PARCO, Pakistan	
Internee Engineer	12/2008 - 01/2009
Pakistan International Airlines (PIA), Karachi, Pakistan	
Internee Engineer	06/2008 - 07/2008
Pakistan Steel Mills, Pakistan	

Research Projects

- Discriminative Deformable Part Models for the Detection of High Intra-Class Variance Objects with Occlusion Handling. (**Co. PI)**
- Color Probability Map based Fuzzy Framework using Deep Models for Face Detection. (**Co. PI)**
- Fabrication of Metal Oxide-doped nano-graphite Humidity Sensor. (**PI)**

Journal Publications

1. Amna Shabbir, Safdar Rizvi, Muhammad Mansoor Alam, **Faizan Shirazi**, Mazliham Mohd Su'ud, "Optimizing energy efficiency in heterogeneous networks: An integrated stochastic geometry approach with novel sleep mode strategies and QoS framework" Plos One, February 2024.
2. Mirza Farrukh Waheed Baig, Syed Farhan Hasany, **Muhammad Faizan Shirazi**, "Green Synthesis of Nano Graphite Materials from Lemon and Orange Peel: A Sustainable Approach for Carbon-Based Materials", Engineering Proceedings, October 2023 (Scopus).
3. **Muhammad Faizan Shirazi**, Jordi Andilla, Nicolas Lefaudeux, Claudia Valdes, Florian Schwarzhans, Marine Durand, Konstantinos Ntatsis, Danilo Andrade De Jesus, Luisa Sanchez Brea, Kiyoko Gocho, Josselin Gautier, Christina Eckmann-Hansen, Marie Elise Wistrup Torm, Abdullah Amini, Stefan Klein, Theo Van Walsum, Kate Grieve, Michel Paques, Michael Larsen, Pablo Loza-Alvarez, Xavier Levecq, Nicolas Chateau & Michael Pircher, "Multi-modal and multi-scale clinical retinal imaging system with pupil and retinal tracking", Scientific Reports 2022 (SCI).
4. Elisabeth Brunner, Julia Shatokhina, **Muhammad Faizan Shirazi**, Wolfgang Drexler, Rainer Leitgeb, Andreas Pollreisz, Christoph K Hitzenberger, Ronny Ramlau, Michael Pircher, "Retinal adaptive optics imaging with a pyramid wavefront sensor for visual science", Biomedical Optics Express 2021 (SCI)
5. **Muhammad Faizan Shirazi,** Elisabeth Brunner, Marie Laslandes, Andreas Pollreisz, Christoph K. Hitzenberger, And Michael Pircher, "Visualizing human photoreceptor and retinal pigment epithelium cell mosaics in a single volume scan over an extended field of view with adaptive optics optical coherence tomography", Biomedical Optics Express, July 2020 (SCI)
6. Luisa Sánchez Brea, Danilo Andrade De Jesus, **Muhammad Faizan Shirazi**, Michael Pircher, Theo van Walsum, Stefan Klein," Review on retrospective procedures to correct retinal motion artefacts in OCT imaging", Applied Sciences, July 2019. (SCIE).
7. Jaeyul Lee, Jaeseok Park, **Muhammad Faizan Shirazi**, Hosung Jo, Pilun Kim, Ruchire Eranga Wijesinghe, Mansik Jeon*, Jeehyun Kim, "Classification of human gingival sulcus using swept-source optical coherence tomography: In vivo imaging", Infrared Physics & Technology, March 2019. (SCIE)
8. Ruchire Eranga Wijesinghe, Seung-Yeol Lee, Naresh Kumar Ravichandran, **Muhammad Faizan Shirazi,** Pilun Kim, Hee-Young Jung, Mansik Jeon*, and Jeehyun Kim, "Biophotonic approach for the characterization of initial bitter-rot progression on apple specimens using optical coherence tomography assessments", Scientific Reports, October 2018 (SCI)
9. Jyothsna Konkada Manattayil, Naresh Kumar Ravichandran, Ruchire Eranga Wijesinghe, **Muhammad Faizan Shirazi**, Seung-Yeol Lee, Byungin Moon, Pilun Kim, Hee-Young Jung*, Mansik Jeon*, and Jeehyun Kim, "Non-Destructive Classification of Diversely Stained Capsicum annuum Seed Specimens of Different Cultivars Using Near-Infrared Imaging Based Optical Intensity Detection", Sensors, August 2018 (SCIE)
10. Sungwook Kim, Ruchire Eranga Wijesinghe, Jaeyul Lee, **Muhammad Faizan Shirazi**, Pilun Kim, Jeong Hun Jang, Mansik Jeon*, and Jeehyun Kim, "Multiple Wavelength Optical Coherence Tomography Assessments for Enhanced Ex Vivo Intra-Cochlear Microstructural Visualization", Electronics, July 2018 (SCIE)
11. **Muhammad Faizan Shirazi**, Ruchire Eranga Wijesinghe, Naresh Kumar Ravichandran, Pilun Kim, Mansik Jeon, and Jeehyun Kim*, "Quality assessment of the optical thin films using line field spectral domain optical coherence tomography", Optics and Lasers in Engineering, May 2018 (SCI)
12. Jaeyul Lee, **Muhammad Faizan Shirazi**, Kibeom Park, Mansik Jeon*, and Jeehyun Kim, "Defect inspection of actuator lenses using swept-source optical coherence tomography", Optical Review, December 2017. (SCIE)
13. Naresh Kumar Ravichandran, Ruchire Eranga Wijesinghe, Seung-Yeol Lee, **Muhammad Faizan Shirazi,** Hee-Young Jung*, Mansik Jeon*, and Jeehyun Kim, "In vivo non-destructive monitoring of Capsicum annuum seeds growth with diverse NaCl concentrations using optical detection technique", Sensors, December 2017. (SCIE)

14. **Muhammad Faizan Shirazi**, Pilun Kim, Mansik Jeon, Chang-Seok Kim* and Jeehyun Kim*, "Free Space Broad-Bandwidth Tunable Laser Diode Based on Littman Configuration for 3D Profile Measurement", Optics and Laser Technology, November 2017. (SCI)
15. **Muhammad Faizan Shirazi**, Mansik Jeon*, and Jeehyun Kim, "Structural Analysis of Polymer Composites Using Spectral Domain Optical Coherence Tomography", Sensors, May 2017 (SCIE)
16. **Muhammad Faizan Shirazi**, Pilun Kim, Mansik Jeon*, and Jeehyun Kim, "Full-Field Optical Coherence Tomography Using Galvo Filter-Based Wavelength Swept Laser", Sensors, November 2016 (SCIE)
17. **Muhammad Faizan Shirazi**, Ruchire Eranga Wijesinghe, Naresh Kumar Ravichandran, Pilun Kim, Mansik Jeon, and Jeehyun Kim*, "Dual-path handheld system for cornea and retina imaging using optical coherence tomography", Optical Review, November 2016 (SCIE)
18. **Muhammad Faizan Shirazi**, Kibeom Park, Ruchire Eranga Wijesinghe, Hyosang Jeong, Sangyeob Han, Pilun Kim, Mansik Jeon, and Jeehyun Kim*, "Fast Industrial Inspection of Optical Thin Film Using Optical Coherence Tomography", Sensors, Vol. 16, No. 1598, September 2016 (SCIE)
19. Ruchire Eranga Wijesinghe, Seung-Yeol Lee, Naresh Kumar Ravichandran, **Muhammad Faizan Shirazi**, Byungin Moon, Hee-Young Jung*, Mansik Jeon*, and Jeehyun Kim, "Bio-photonic detection method for morphological analysis of anthracnose disease and physiological disorders of Diospyros kaki", Optical Review, September 2016 (SCIE)
20. Naresh Kumar Ravichandran, Ruchire Eranga Wijesinghe, **Muhammad Faizan Shirazi**, Kibeom Park, Mansik Jeon*, Woonggyu Jung, and Jeehyun Kim, "Depth enhancement in spectral domain optical coherence tomography using bidirectional imaging modality with a single spectrometer", Journal of Biomedical Optics, Vol.21, Issue 7, July 2016 (SCI)
21. Ruchire Eranga Wijesinghe, Seung-Yeol Lee, Naresh Kumar Ravichandran, **Muhammad Faizan Shirazi,** Pilun Kim, Hee-Young Jung*, Mansik Jeon*, and Jeehyun Kim, "Optical screening of *Venturianashicola* caused *Pyruspyrifolia* (Asian pear) scab using optical coherence tomography" International Journal of Applied Engineering Research 2016 (Scopus)
22. Naresh Kumar Ravichandran, Ruchire Eranga Wijesinghe, **Muhammad Faizan Shirazi,** K.ibeom Park, Seung-Yeol Lee, Hee-Young Jung, Mansik Jeon*, and Jeehyun Kim, "In Vivo Monitoring on Growth and Spread of Gray Leaf Spot Disease in Capsicum annuum Leaf Using Spectral Domain Optical Coherence Tomography", Journal of Spectroscopy, Volume 2016, 27 December 2015. (SCIE)
23. **Muhammad Faizan Shirazi**, Mansik Jeon, Jeehyun Kim*, "850 nm centered wavelength swept laser based on wavelength selection galvo filter", Chinese Optics Letters, 14(1), Dec. 10. 2015. (SCIE)
24. **Muhammad Faizan Shirazi**, Namhyun Cho, Woonggyu Jung, Jeehyun Kim*, "Lateral resolution enhancement using programmable phase modulator in optical coherence tomography", Bio-Medical Materials and Engineering, 26(s1), S1465-S1471, Aug. 17. 2015. (SCIE)
25. **Muhammad Faizan Shirazi**, Woonggyu Jung and Jeehyun Kim*, "Phase correction using programmable phase modulator (PPM) in optical coherence tomography", Biomedical Engineering Letters 4 (2014), 64-72. (SCIE)

Conference Proceedings and Presentations

1. Kiyoko Gocho; Nicolas Lefaudeux; Claudia Valdes; Jordi Andilla; **Muhammad Faizan Shirazi**; Florian Schwarzhans; Konstantinos Ntatsis; Luisa Sanchez Brea; Danilo Andrade De Jesus; Marie Elise Wistrup Torm; Christina Eckmann-Hansen; Abdullah Amini; Kate Grieve; Pablo Loza-Alvarez; Michael Pircher; Michel Paques "Pilot investigation of multimodal and multiscale retinal imaging technology developed by a trans-European multidisciplinary consortium", Investigative Ophthalmology & Visual Science, ARVO Annual Meeting, June 2022.
2. **Muhammad F. Shirazi**, Jordi Andilla, Marina Cunquero, Nicolas Lefaudeux, Danilo Andrade De Jesus, Luisa Sanchez Brea, Stefan Klein, Theo van Walsum, Kate Grieve, Michel Paques, Michael Larsen, Pablo Loza, Xavier levecq, Nicolas Chateau, Michael Pircher, "Multi modal and multi scale retinal imaging with angiography", Investigative Ophthalmology & Visual Science, ARVO Annual Meeting, May 2021.
3. **M. F. Shirazi**, J. Andilla, C. P. Valdes, N. Lefaudeux, D. Andrade De Jesus, L Sanchez Brea, S. Klein, T. Van Walsum, K. Grieve, M. Paques, M. Torm, M. Larsen, P. Loza-Alvarez, X. Levecq, N. Chateau, and M.

Pircher, "High Resolution Multi-Modal and Multi-Scale Retinal Imaging for Clinical Settings", Biophotonics Congress 2021.

4. Elisabeth Brunner, Julia Shatokhina, **Muhammad Faizan Shirazi**, Wolfgang Drexler, Rainer Leitgeb, Christoph K Hitzenberger, Ronny Ramlau, Michael Pircher, "Adaptive optics OCT with a non-modulated pyramid wavefront sensor", SPIE Photonics West 2021.
5. **Muhammad Faizan Shirazi**, Jordi Andilla, Marina Cunquero, Nicolas Lefaudeux, Danilo Andrade De Jesus, Luisa Sanchez Brea, Stefan Klein, Theo van Walsum, Kate Grieve, Michel Paques, Michael Larsen, Pablo Loza, Xavier levecq, Nicolas Chateau, Michael Pircher, "Multi modal and multi scale retinal imaging with and without adaptive optics for clinical settings", Investigative Ophthalmology & Visual Science, ARVO Annual Meeting, June 2020.
6. **Muhammad Faizan Shirazi**, Elisabeth Brunner, Marie Laslandes, Christoph K. Hitzenberger, Michael Pircher, "Extending the field of view with multiconjugate adaptive optics optical coherence tomography", SPIE Photonics West 2020.
7. Elisabeth Brunner, **M. Faizan Shirazi**, Marie Laslandes, Wolfgang Drexler, Andreas Pollreisz, Christoph K. Hitzenberger, Michael Pircher, "Cellular resolution AO-OCT imaging of the retina with an extended field of view", Biophotonics Congress: Biomedical Optics 2020 (Translational, Microscopy, OCT, OTS, BRAIN)
8. Elisabeth Brunner, Julia Shatokhina, **Muhammad Faizan Shirazi**, Wolfgang Drexler, Christoph K. Hitzenberger, Rainer A Leitgeb, Ronny Ramlau, Michael Pircher, "In-vivo demonstration of AO-OCT with a 3-sided pyramid wavefront sensor", SPIE Photonics West 2020.
9. Jaeyul Lee, Jaeseok Park, **Muhammad Faizan Shirazi**, Hosung Jo, Pilun Kim, Ruchire Eranga Wijesinghe, Mansik Jeon*, Jeehyun Kim, "Imaging of periodontal tissue using swept-source optical coherence tomography for measurement of gingival sulcus depth", SPIE Photonics West 2020.
10. Sungwook Kim, Ruchire Eranga Wijesinghe, Jaeyul Lee, **Muhammad Faizan Shirazi**, Jeong Hun Jang, Mansik Jeon, and Jeehyun Kim, "Diverse visualization of guinea pig cochlea images using distinct wavelengths optical coherence tomography (OCT)", SPIE Photonics West 2018.
11. **Muhammad Faizan Shirazi** and Jeehyun Kim, "Intraoperative optical coherence tomography probe with augmented reality for surgical applications" The 25th International Conference on Advanced Laser Technologies. **[Invited]**
12. Ruchire Eranga Wijesinghe, Kibeom Park, **Muhammad Faizan Shirazi**, Mansik Jeon, and Jeehyun Kim, "Incorporate assessment of optical coherence tomography and optical diagnostic techniques for the enhanced visualization of industrial resin defects", The 25th International Conference on Advanced Laser Technologies. **[Best Poster]**
13. **Muhammad Faizan Shirazi**, Ruchire Eranga Wijesinghe, Naresh Kumar. R Pilun Kim, Mansik Jeon, and Jeehyun Kim*, "Optical thin film inspection using parallel spectral domain optical coherence tomography", The 25th International Conference on Optical Fiber Sensors.
14. Naresh Kumar Ravichandran, Ruchire Eranga Wijesinghe, Seung-Yeol Lee, **Muhammad Faizan Shirazi,** Kibeom Park, Hee-Young Jung*, Mansik Jeon*, and Jeehyun Kim, "Swept source optical coherence tomography for in vivo growth monitoring of capsicum annuum seeds treated with different NaCl concentrations", The 25th International Conference on Optical Fiber Sensors.
15. Ruchire Eranga Wijesinghe, Seung-Yeol Lee, Naresh Kumar Ravichandran, **Muhammad Faizan Shirazi,** Sangyeop Han, Hyosang Jeong, Pilun Kim, Hee-Young Jung, Mansik Jeon*, and Jeehyun Kim, "Application of wearable optical coherence tomography (OCT) and Loopmediated isothermal amplification (LAMP) techniques for in situ real-time field inspection of apple Marssonina blotch disease". Biomedical Imaging and Sensing Conference 2017.
16. **Muhammad Faizan Shirazi**, Ruchire Eranga Wijesinghe, Naresh Kumar. R Pilun Kim, Mansik Jeon, and Jeehyun Kim*, "Dual illumination for cornea and retina imaging using spectral domain optical coherence tomography", Biomedical Imaging and Sensing Conference 2017.
17. **Muhammad Faizan Shirazi,** Changseok Kim, Mansik Jeon, Jeehyun Kim, "Wide area scanning using wavelength swept laser for industrial inspection of samples", Times-icon 2016
18. **Muhammad Faizan Shirazi,** Ruchire Eranga Wijesinghe, Kibeom Park, Pilun Kim, Mansik Jeon, Jeehyun Kim, "Wavelength-swept laser based wavelength scanning interferometry for 3D surface measurement", Computer Assisted Radiology and Surgery Conference 2016

19. Ruchire Eranga Wijesinghe, Namhyun Cho, Kibeom Park, **Muhammad Faizan Shirazi,** Mansik Jeon, Jeehyun Kim, "Anatomical structure analysis for dental caries using optical coherence tomography for medical imaging", Computer Assisted Radiology and Surgery Conference 2016
20. **Muhammad Faizan Shirazi**, Ruchire E. H. Wijesinghe, Kibeom Park, Pil Un Kim, Mansik Jeon, Jeehyun Kim, "High speed line field spectral domain optical coherence tomography for morphological inspection of industrial samples", SPIE Photonic west, 2016.
21. Ruchire E. Henry Wijesinghe, Kibeom Park, **Muhammad Faizan Shirazi**, Mansik Jeon, Jeehyun Kim, "In vivo imaging of melanoma tissues guided by magnetic nanoparticles augmented magneto-motive optical Doppler tomography system", SPIE Photonic west, 2016.
22. Naresh Kumar Ravichandran, Ruchire E. H. Wijesinghe, **Muhammad Faizan Shirazi**, Kibeom Park, Jaeyul Lee, Jaewon Song, Mansik Jeon, Jeehyun Kim "Dual scan based SD-OCT for depth enhanced investigation on leaf samples using a single spectrometer", SPIE Photonic west, 2016.
23. **Muhammad Faizan Shirazi,** Nam Hyun Cho, Kibeom Park, Ruchire E. Henry Wijesinghe, Jeehyun Kim, "Large area full field optical coherence tomography based on swept source for morphological investigation of samples", SPIE Photonic west, 2015.
24. Ruchire E. Henry Wijesinghe, Nam Hyun Cho, Kibeom Park, **Muhammad Faizan Shirazi,** Upeksha Muhandiram, Sa-Youl Ghim, Hee-Young Jung, Jeehyun Kim, "Nondestructive germination speed analysis of Capsicum annum seeds under distinct chemical conditions using high-resolution swept source OCT", SPIE Photonic west, 2015.
25. Wakeel Ahmed, Osama Munawar Jamil, **Muhammad Faizan Shirazi**, Muhammad Hafeez Abbasi, "PSO with Gompertz increasing inertia weight", IEEE 8th Conference on Industrial Electronics and Applications, 2013.
26. Zahid Ali Siddiqui, Ahmed Munir, **Muhammad Faizan Sherazi,** Syed Muhammad Danish, "Design of Low Cost Embedded System for Automation of a Parallel Processing Plant" International Conference on Advanced Mechatronic Systems, Zhengzhou, China, August 11-13, 2011.

Membership

- SPIE-the international society for optics and photonics. (Member # 3633587)
- Pakistan Engineering Council. (Membership # ELECTRO/11895)
- OSA-Optical Society of America. (Membership # 1161276)
- ORCID: 0000-0002-4488-8860