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Professional Profile

Dr. Kouhani specializes in electronic circuits and devices, microfabrication processes, wearable and implantable sensors, electrochemistry, and neural stimulation. While he leverages his theoretical strength in semiconductor and metallic thin film technology, he offers strong hands-on instrumentation and testing capabilities in biomedical and electromechanical devices and computing systems.

His graduate research included developing radio-frequency MEMS resonators for MRI applications, pressure sensing contact lens for continuous intraocular pressure monitoring, investigating conductive polymers for electrochemical interfaces, and developing optogenetic neural stimulation devices. In addition, he has experience in nanoparticle synthesis, immune cell culture, and molecular imaging using advanced electron and optical microscopy.

Academic Credentials & Professional Honors

Ph.D., Electrical Engineering, Michigan State University, 2020

M.Sc., Electrical Engineering, Bogazici University, Turkey, 2014

B.Sc., Electrical Engineering, University of Tehran, Iran, 2012

Prior Experience

Intern, Advanced Research, Second Sight Medical Products Inc., 2019-2020

Professional Affiliations

The Institute of Electrical and Electronics Engineers – IEEE

American Society for Testing and Materials – ASTM International

Languages

Persian (Farsi)

Patents

US Patent 16/494, 894: Intraocular pressure sensor, Jan. 2020 (Li W, Weber AJ, Kouhani MHM)

Publications

Kouhani MHM, Istomin A, Datta P, Talbot N, Hybrid Chemomechanical Promotion of PEDOT Adhesion onto Flexible Microelectrode Arrays for Chronic Neural Stimulation, bioRxiv; 2020

Kouhani MHM, Wu J, Tavakoli A, Weber AJ, Li W, Wireless, passive strain sensor in a doughnut-shaped contact lens for continuous non-invasive self-monitoring of intraocular pressure, Lab on a Chip, 2020, 20 (2), 332-342

Kouhani MHM, Luo R, Madi F, A, Weber AJ, Li W, A wireless, smartphone controlled, battery powered, head mounted light delivery system for optogenetic stimulation, 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), 2018, 3366-3369

Gibson DJ, Schultz G, Kouhani MHM, Li W, Liu X, Lilihoj PB, Wireless Biosensor on Dressing for Rapid Measurements of Wound Biomarkers, Wound Repair and Regeneration, 2018, Vol. 26, A42

Kouhani MHM, Weber AJ, Li W, Wireless intraocular pressure sensor using stretchable variable inductor, IEEE 30th International Conference on Micro Electro Mechanical Systems (MEMS), 2017, 557-560

Kouhani MHM, Weber AJ, Li W, Integrated Silicon Photovoltaics on CMOS With MEMS Module for Catheter Tracking, Journal of Lightwave Technology, 2015, Vol. 33, 3426-3432

Mehri M, Sarvari R, Kouhani MHM, Shariati Z, VLSI interconnect issues in definitive and stochastic environments, Microelectronics Journal, 2015, Vol. 46, 351-361

Kouhani MHM, Cakaci AU, Kusakci E, Torun H, Yalcinkaya AD, Design, Fabrication and Characterization of RF MEMS Resonator for Catheter Localization under MRI, 25th Micromechanics and Microsystems Europe Conference, 2014

Cakaci AU, Kouhani MHM, Torun H, Yalcinkaya AD, Design, An Electromagnetic MEMS-Based Resonator Design for Catheter Tracking in MRI 24th Micromechanics and Microsystems Europe Conference, 2013

Mehri M, Sarvari R, Kouhani MHM, Masoumi N, Sarvari R, New approach to VLSI buffer modeling considering overshooting effect, IEEE Transactions on very large scale integration (VLSI) systems, 2012, Vol. 21, 1568-1572

Presentations

Kouhani MHM, Luo R, Madi F, A, Weber AJ, Li W, A wireless, smartphone controlled, battery powered, head mounted light delivery system for optogenetic stimulation, 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Hawaii, USA, 2018

Kouhani MHM, Weber AJ, Li W, Wireless intraocular pressure sensor using stretchable variable inductor, IEEE 30th International Conference on Micro Electro Mechanical Systems (MEMS), Las Vegas, USA, 2017

Cakaci AU, Kouhani MHM, Torun H, Yalcinkaya AD, Design, An Electromagnetic MEMS-Based Resonator Design for Catheter Tracking in MRI 24th Micromechanics and Microsystems Europe Conference, Helsinki, Finland, 2013

Peer Reviewer

IEEE Transactions on Biomedical Engineering

Journal of Bionanoscience (ASP)

BioNanoScience (Springer)