



AHMET GULSARAN

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Education:

- 2020 – 2025 (expected) PhD, MME - Nanotechnology (CGPA: 90.7/100)
University of Waterloo, Waterloo, Canada
- 2017 – 2020 B.S., Physics (CGPA: 90.4/100)
Middle East Technical University, Ankara, Turkey
- 2014 - 2019 B.S., Mechanical Engineering (CGPA: 83.2/100)
Middle East Technical University, Ankara, Turkey

Work Experience:

- Sep 2020 - Present Graduate Research Student (Ph.D.), Department of Mechanical and
Mechatronics Engineering, University of Waterloo, Canada
MEMS/ NEMS
Cleanroom Fabrication
Quantum Electronics
- Sep 2021 - Present Engineering Computing Consultant, Engineering Faculty,
University of Waterloo, Canada
IT support
Engineering software tools
Consulting
- Jun 2022 - Present Graduate Research Assistant, Department of Electrical and
Computer Engineering, University of Waterloo, Canada
Cleanroom Fabrication
Quantum Electronics
Quantum Photonics
- Jan 2021 - Sep 2022 Teaching Assistant, Department of Mechanical and Mechatronics
Engineering, University of Waterloo, Canada
Manufacturing Processes
Dynamics
Introduction to Microprocessors and Digital Logic

Jul 2019 - Sep 2020	Researcher, METU MEMS Center, Ankara, Turkey <i>Photoacoustic THz detector</i> <i>Micromanufacturing processes</i> <i>Vacuum and cryogenic systems</i>
June 2019 – July 2019	Candidate Engineer, ASELSAN, Ankara, Turkey <i>Turkish Defense Industry</i> <i>Radar systems</i> <i>Sea platforms</i>
Feb 2019 - June 2019	Researcher, METU CFD Research Team, Ankara, Turkey <i>Rarefied gas dynamics</i> <i>High enthalpy flows</i> <i>Magnetohydrodynamics</i>
Jun 2019 - Jul 2019	Intern, ROKETSAN (Turkish Armed Forces Foundation), Turkey <i>Turkish Defense Industry</i> <i>Rocket design by thermal stress optimization in nozzle</i> <i>Static & Dynamic tests</i>
Aug 2018 - Sep 2018	Intern, Birinci Otomotiv, Kocaeli, Turkey <i>Forging/ Machining</i> <i>Tool design</i> <i>Mechanical/ Electrical maintenance</i>

Published Journal Articles:

- First Author (Minor Revision) - **Gulsaran, A.**, Bastug Azer, B., Saritas, R., Kocer, S., Shama, ... Abdel-Rahman, E., & Yavuz, M. High Responsivity, Self-Actuated Aluminum-Based Resonant MEMS Humidity Sensor. *Sensors and Actuators B: Chemical* (SNB-D-23-06366R2)
- Co-author (Minor Revision) - Yildiz, D.E., Karadeniz, S., Yildirim, M., **Gulsaran, A.**, Bastug Azer, B., Yavuz, M. Novel PANI: Borophene/Si Schottky device for the sensitive detection of illumination and NaCl salt solutions. *Journal of Materials Science: Materials in Electronics* (JMSE-D-23-04492)
- Co-author - Ozyigit, D., Ullah, F., **Gulsaran, A.**, Bastug Azer, B., Shahin, A., Musselman, K., ... & Yavuz, M. (2023). Manufacturing of quantum-tunneling MIM nanodiodes via rapid atmospheric CVD in terahertz band. *Scientific Reports*, 13(1), 20733. (DOI: 10.1038/s41598-023-47775-5)
- Co-author - Saritas, R., Al-Ghamdi, M., Das, T. M., Rasheed, O., Kocer, S., **Gulsaran, A.**, ... & Abdel-Rahman, E. (2023). Nano Groove and Prism-Structured Triboelectric Nanogenerators. *Micromachines*, 14(9), 1707. (DOI: 10.3390/mi14091707)
- First Author - **Gulsaran, A.**, Bastug Azer, B., Ozyigit, D., Saritas, R., Kocer, S., Abdel-Rahman, E., & Yavuz, M. (2023). Built-In Packaging for Two-Terminal Devices. *Micromachines*, 14(7), 1473. (DOI: 10.3390/mi14071473)

- Co-author - Atan, O., Pina, J. M., Parmar, D. H., Xia, P., Zhang, Y., **Gulsaran, A.**, ... & Sargent, E. H. (2023). Control over Charge Carrier Mobility in the Hole Transport Layer Enables Fast Colloidal Quantum Dot Infrared Photodetectors. *Nano Letters*. (DOI: 10.1021/acs.nanolett.3c00491)
- Second Author - Azer, B. B., **Gulsaran, A.**, Pennings, J. R., Karimi, R., Belgabad, A. A., Xu, A. H., ... & Yavuz, M. (2023). Core-shell defective TiO₂ nanoparticles by femtosecond laser irradiation with enhanced photocatalytic performance. *Materials Advances*, 4(5), 1297-1305. (DOI: 10.1039/D3MA00019B)
- Co-author - Kamel, A., Kocer, S., Mukhangaliyeva, L., Saritas, R., **Gulsaran, A.**, Elhady, A., ... & Abdel-Rahman, E. (2022, August). Resonant adaptive MEMS mirror. In *Actuators* (Vol. 11, No. 8, p. 224). MDPI. (DOI: 10.3390/act11080224)
- First Author - **Gulsaran, A.**, Bastug Azer, B., Kocer, S., Rahmanian, S., Saritas, R., Abdel-Rahman, E. M., & Yavuz, M. (2022). Built-In Packaging for Single Terminal Devices. *Sensors*, 22(14), 5264. (DOI: 10.3390/s22145264)
- Equally Contributed Second Author - Azer, B. B., **Gulsaran, A.**, Pennings, J. R., Saritas, R., Kocer, S., Bennett, J. L., ... & Yavuz, M. (2022). A Review: TiO₂ based photoelectrocatalytic chemical oxygen demand sensors and their usage in industrial applications. *Journal of Electroanalytical Chemistry*, 918, 116466. (DOI: 10.1016/j.jelechem.2022.116466)

Published Conference Articles:

- Kocer, S., Mukhangaliyeva, L., Saritas, R., **Gulsaran, A.**, Elhady, A., Bell, K., Kamel, A., Basha, M., Das, T., Kayaharman, M. and Hajireza, P., 2022, January. Resonant Varifocal Mems Mirror. In 2022 IEEE 35th International Conference on Micro Electro Mechanical Systems Conference (MEMS) (pp. 963-966). IEEE.

Published Posters:

- First Author - **Gulsaran, A.**, Bastug Azer, B., Tasaltin, N., Tasaltin, C., Yavuz, M. (November 2023). Borophene and Silicene-Based Humidity Sensors using Quartz Crystal Microbalance. In MRS Fall Meeting 2023.
- Second Author - Bastug Azer, B., **Gulsaran, A.**, Karimi, R., Sanderson, J., Pope, M., Yavuz, M. (November 2023). Synthesis and Characterization of TiO₂-GO Hybrid via Femtosecond Laser Irradiation in Liquid for Enhanced Photocatalytic Applications under Visible- Light. In MRS Fall 2023 Meeting.
- Co-author - Shamam Y. S., Abdelrahman, R., Arabi, M., Saritas, R., Rahmanian, S., **Gulsaran, A.**, Kocer, S., Elhady, A., Mouharrar, H., Abdel-Rahman, E.M. (June 2023) - A Comparative Study of Two Types of Bifurcation-Based MEMS Sensors. In Nonlinear Dynamics Conference (NODYCON 2023).

- Second Author - Yang, H., **Gulsaran, A.**, Kim, N. Y. (March 2023)- Programmable Quantum Simulation in Carbon Nanotube Exciton-Polariton at Room Temperature. In APS March Meeting 2023.
- Second Author - Bastug Azer B., **Gulsaran A.**, Karimi R., Ashrafi Belgabad A., Kocer, S., Sanderson J., Bajcsy M., Pope M. A., & Yavuz M. (January 2023). Surface Defective TiO₂ Nanoparticles by Femtosecond Laser Modification with Enhanced Electron Transfer Rate for Biosensing Applications. In SPIE Photonics West International Conference.
- Co-author - Kocer, S., Mukhangaliyeva, L., **Gulsaran, A.**, Elhady, A., Saritas, R., Bastug Azer, B., Rahmanian, S., Sharma, Y., Bell, K., Hajireza, P., Yavuz, M., & Abdel-Rahman, E. (January 2023). Resonant MEMS deformable mirror for fast and wide-field-of-view focus scanning. In SPIE Photonics West International Conference.

Language Skills:

- Turkish : Native Language
- English : Advanced
- Spanish : Elementary
- German : Elementary

Awards:

- University of Waterloo Rowing Team Oarsman of the Year (x2)
- High Honored Undergraduate Student Award (x5)
- Honored Undergraduate Student Award (x7)
- Turkish Rowing Championship/ Cup: +20 Gold, +5 Silver, +5 Bronze medals

Certificates:

- L-EDIT Training from CMC
- CoventorMP and MEMS+ Training from CMC
- Structural Mechanics in COMSOL Multiphysics® Training from CMC
- Amateur Sailor Certificate - 2019
- UWE Bristol International Summer School Programme Certificate – 2014

Scholarships:

- Paul Niessen – Teck Award,
- University of Waterloo Graduate Student Research Dissemination Award,
- University of Waterloo Graduate Scholarship,
- University of Waterloo Faculty of Engineering Graduate Scholarship,
- TÜBİTAK BİDEB-2205 Double Major Program.

Hobbies and Interests:

- Rowing, Chess, Archaeology, Sailing, Hiking, Wind Surfing, Cycling, Athleticism, Basketball, Soccer, Skiing, Sport/ Science Magazines, Concerts.

References:

- Available upon request.