Yusuf Dogan

Email: yusufdogan@sivas.edu.tr Phone: +90 (553) 910-2274

SUMMARY OF QUALIFICATIONS

- Over 5 years of working experience of engineering and research in device science and nanotechnology
- Extensive knowledge of MEMS fabrication, process flow, lithography, etching and micromachining with other clean room experience
- Expertise in ultrafast laser micromachining and surface characterization, profilometry and metrology
- Strong ability for new techniques of fabricating precise optical elements and laser surface polishing
- Deep hands-on experience on material characterization techniques including AFM, SEM, OM and WLI
- Proficient with MATLAB, ZEMAX, SolidWorks

EDUCATION

Texas A&M University (TAMU), College Station, Texas December 2018
Ph.D., Electrical and Computer Engineering, Minor in Device Science and Nanotechnology (GPA: 3.56)
Dissertation: *Fabrication of Advanced Light-Pipes in Glass with Optical-Quality Surfaces*

Texas A&M University (TAMU), College Station, Texas August 2014
M.S., Electrical and Computer Engineering, Minor in Device Science and Nanotechnology
Thesis: *Observation of Liquid Metal Actuation in Microfluidic Channels and Implementation to Tunable RF Inductors*

Gazi University, Ankara, Turkey May 2010
B.Sc., Electrical Engineering
Thesis: *Electromagnetic Interference and Shielding*

PROJECTS

- *A Novel Design for High Sensitivity Fiber Optic Temperature and Strain Sensor Modulated with LPFGs for Battery Temperature and Swelling Analysis*, Higher Education Institutions Supported Project, Sivas University of Science and Technology, Manager, 2022
- *Stabilization of Micron Scale Random Laser Modes by Optimizing the Cavity Parameters*, Higher Education Institutions Supported Project, Sivas University of Science and Technology, Researcher, 2021
- *Design and Fabrication of Fully Solar Powered Unmanned Aerial Vehicle Capable of Flying 24/7 and Momentarily Capturing and Processing Images*, Higher Education Institutions Supported Project Gümüşhane University, Manager, 2019
- *Waveguiding Solar Concentrator*, Advanced Research Projects Agency - Energy (ARPA-E) - U.S. Department Of Energy, Researcher, 2016 - 2018

PUBLICATIONS

- Y. Dogan, C.K. Madsen, “Optimization of ultrafast laser parameters for 3D micromachining of fused silica”, Optics & Laser Technology, 2020
- C.K. Madsen, Y Dogan, J Lin, “CO2 Laser Sidewall Polishing of Millimeter-scale Fused Silica Light Pipes”, OSA, 2020
- C.K. Madsen, Y. Dogan, et al., “Femtosecond-laser-based prototyping of light pipe circuits” Proc. SPIE, 2019
- Y. Dogan, et al., “Demonstration of Glass Light Pipes for Solar Concentration” Proc. SPIE, 2018
- Y. Dogan, et al., “Fabrication of Advanced Glass Light Pipes for Solar Concentrators,” Proc. SPIE, 2017
- M. Morrison, Y. Dogan, et al., “Characterization of Light Pipe Optical Loss for Concentrating Solar Applications,” OSA, 2017
- C. Hu, Y. Dogan, et al., “A Better Predictor for Waveguide Outcoupling by Surface Texturing or Roughness” OSA, 2017
- C. Hu, Y. Dogan, et al., “High Efficiency Glass Waveguiding Solar Concentrator” IEEE, 2017
- Y. Dogan, et al., “Waveguiding Solar Concentrator” TAMU ERS, 2016

EXPERIENCE

Dept. of Electrical & Electronics Eng., Sivas University of Science and Technology Jan 2020– Present
Assistant Professor

- Leading the role of Head of Department of Electrical & Electronics Engineering

Department of Electrical & Electronics Engineering, Gümüşhane University Mar 2019 – Dec 2019
Lecturer

Department of Electrical Engineering**,** Texas A&M University Sep 2015 – Dec 2018
Graduate Research Assistant

- Prototyped parts and assembly for high concentrator photovoltaics (CPV) system
- Modelled lenses, couplers and waveguides, fabricate micro scale optical elements by multiphoton absorption process and simulate surface scattering loss and efficiency
- Optimized laser glass polishing with arbitrary waveform generation control, heat and cool timing, closed loop power control and thermal imaging
- Experienced on surface characterization tools like AFM, white light interferometer and stylus profiler
- Studied and test multilayer AR/HR surface coating and efficiency
- Obtained experience on fiber cleaving and splicing, photodiodes, solar cells, laser diodes, acousto-optic modulator, beam profiler, autocorrelator, isolator.

Lam Research Corp.**,** Fremont, California June 2018 – Aug 2018
Intern, Engineering Intern 3

- Gained knowledge of semiconductor wet clean process development.
- Evaluated confinement effect on the selective etching of high aspect ratio structures.
- Utilized thin film measurement systems, wafer inspection systems, spectroscopy, and SEM.
- Worked on diffusion, surface charge, and ion exchange.

Sunstrike Optics LLC**,** Bryan, Texas Sep 2017 - Dec 2017
Intern, R&D Engineering Associate

- Worked with optical systems, measurement, and process development.
- Applied ultrafast laser direct writing technique followed by chemical etching for optical element fabrication and optimized laser parameters for high-speed mass production.
- Improved stress-induced surface quality with IR laser irradiation.
- Acquire and synthesize a large set of data and present the results for future improvements.

Department of Electrical Engineering**,** Texas A&M University Sep 2012 - Sep 2015
Graduate Student Researcher

- Applied photolithography process with other cleanroom experience (mask aligner, profiler, micro dicing saw, E-beam evaporator, DC and RF sputter, Reactive ion etching (RIE), wet etching, electroplating, thin-film measurement, annealing furnaces, and glove box).
- Achieved polymer microfabrication – multilayer soft lithography (Lab on a Chip).
- Employed stereolithography (SLA) 3D printing, laser cutting, and engraving, SMT (surface mount technology) pick and place controlling, and photomask design.

SKILLS

- ***Laboratory skills:*** Ultrafast laser micromachining, fs/CO_2 and VIS-NIR lasers, thermal imaging, optical fibers, surface characterization, AR/HR coating, fiber cleaving/splicing, AFM, SEM, white light interferometry, stylus profilometry, clean room, photolithography, dicing saw, DC/RF sputtering, RIE, soft lithography, liquid metals, SLA, laser cutter, SMT, spectrometers, lapping and polishing machine
- ***Programming languages:*** *MATLAB,* Python, *C++*, *G-code*
- ***Drawing programs:*** *SolidWorks, Origin*, *Tecplot, Ai*
- ***Simulation programs:*** *ZEMAX*, *TracePro, LabVIEW, COMSOL (AC/DC), Cadence, ADS*

HONORS

- First place best student poster award, SPIE Optifab, 2017
- Texas A&M University ECEN Department travel grants
- Fellowship for both M.S. and Ph.D. education from Republic of Turkey Ministry of National Education

LECTURING

- Optical System Design (Graduate)
- Electromagnetic Compatibility (Graduate)
- Nanophotonics (Graduate)
- Electromagnetic Waves (Undergraduate)
- Materials and Semiconductor Technologies (Undergraduate)
- Microprocessors (Undergraduate)