Hasan Fiaz

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Career Profile

I am a Process Engineer with over 4 years of experience in the field of Microelectromechanical systems (**MEMS**) & the semiconductor industry. I worked as a Process Engineer in a Fortune 500 company. I developed polymer and glass-based MEMS devices that included liquid lenses, glass cuvettes, gas sensors, and microscale force-sensing cantilevers. I was solely responsible for developing laser bonding processes that delivered 2500 liquid lenses to a multinational electronics company.
Core competencies include photomask design utilizing AutoCAD & L-Edit, Microfabrication techniques including photolithography, soft lithography, film deposition, etching, and bonding, Laser processing technology, and Metrology. Educational credentials include an MS in Biomedical Engineering from the University of Connecticut.

Professional Experience

Corning Incorporated, Santa Barbara, CA

Designs, develops, and manufactures microfluidics, MEMS, and 3D microstructures

Process Engineer
September 2015 – May 2018

- Designed and fabricated micromechanical, and microfluidic devices made of photosensitive glass by photolithography, chemical wet etching, thermal and laser processing
- Carried packaging of MEMS devices by laser processing technology
- Utilized Invenios Robotics Interactive System (IRIS), a language based on C++, to program and run linear and rotary stages on laser bonding stations
- Developed laser bonding process of glass cuvettes intended to hold samples for particle size measurement utilizing dynamic light scattering
- Assembled carbon monoxide monitoring sensors made of glass at chip and wafer-scale level
- Tested wet etching processes to achieve high aspect ratio in thick photosensitive glasses
- Developed laser bonding process of liquid lenses at chip and wafer-scale level
- Trained and supervised technicians in laser processing technology

Hoshino Lab, University of Connecticut, Storrs, CT

The Lab study microscale force sensing and optical imaging for biomedical analysis

Research Assistant
January 2014 – May 2015

- Designed and fabricated microscale force-sensing cantilevers made of SU-8 photoresist, to manipulate and measure the stiffness of Polydimethylsiloxane (PDMS) micropillars and aggregate of cancer cells
- Designed and fabricated microscale polymer molds to develop PDMS films used for biomimetic biopotential sensing (ECG)
- Developed a nanopositioning XY stage used in optical positioning and laser scanning

Highlights:

- **Master of Science Thesis:** Polymer-Based Micro Scale Force Sensing Cantilevers for Biosample Manipulation and Measurements (http://opencommons.uconn.edu/gs_theses/747)
- **Journal Paper Publication:** Hasan S. Fiaz, Casey R. Settle, and Kazunori Hoshino, "Metal additive manufacturing for microelectromechanical systems: Titanium alloy (Ti6Al-4V)-based nano positioning flexure fabricated by electron beam melting." Sensors and Actuators A, 249, 284-293, 2016 (https://www.sciencedirect.com/science/article/pii/S0924424716304149)

Education

University of Connecticut (UConn), Storrs, CT
M.S. Biomedical Engineering, May 2015

University of Engineering and Technology Lahore, Pakistan
B.S. Electrical Engineering, August 2012

Technical Skills

Microfabrication techniques
Photomask design, Mask aligner, Spin coating, Photolithography, Soft-Lithography, Wet chemical etching, Thin-film metal deposition (Thermal Evaporation)

Laser processing technology
Laser cutting, scribing, drilling, ablation, and bonding

Metrology
Proficient in measuring samples using an Olympus LEXT Microscope and Zygo Optical Surface Profiler

Software
L-Edit, MATLAB, AutoCAD, Laser Galvo Software (ScanMaster)

Extracurricular & Volunteer Experience

Golden Key International Honor Society Certification
Member as validated by University of Connecticut
Issued October 2014

UConn Husky Sport
Coach
August 2013-December 2014

UET United Soccer Club
Captain
August 2010-August 2012
Manager
August 2012-August 2013