

**Usamma Amjad**  
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## WORK AND RESEARCH EXPERIENCE

### **Intel Corporation**

**Chandler, AZ**  
**2018-2021**

#### *Process Engineer*

- Utilized high-density plasma and flowable chemical vapor deposition for high volume manufacturing of 14 and 22nm semiconductor chips (Applied Materials toolsets: Eterna, Ultima X, Producer)
- Responsible for creating report outs of cost and quality indicators to factory management for two different tool sets: specific semiconductor indicators include: parametric, defects, and process control
- Designed, executed, and implemented a DOE resulting in 1.2 die/wafer yield improvement (1 million die/year); project led to highest quality performance (lower defects per wafer) across all Intel fabs for one quarter
- Developed preventative maintenance planning to ensure lowest cost per wafer start by~\$.50 per wafer start, effectively saving ~\$250,000/year for module across all Intel fabrication facilities
- Created and instructed data extraction/manipulation course for new process engineers
- Selected by department manager to attend annual Intel Manufacturing Excellence Conference
- Part of a three-member team that turned factory limiter to top performing module, garnering the factory manager recognition award
- Factory IOT liaison, actively developing IOT solutions for in fab, on tool, use with the goal of predictive FMEA analytics

### **Green Research Group | Arizona State University**

**Tempe, AZ**  
**2016-2019**

#### *Graduate Researcher*

- Masters' Applied project: Methacrylated Jeffamines as novel hydrogel cross-linkers
- Created novel hydrogel cross-linker functionalizing jeffamines with methacrylate ends in an attempt to improve in vivo hydrolytic stability of hydrogel based medical devices.

### **Chae Research Group | Arizona State University**

**Tempe, AZ**  
**2013-2016**

#### *Undergraduate Researcher*

- Aided in designing, synthesizing, and characterizing a novel passive hydrogel check valve for the treatment of hydrocephalus disease
- Funded by the Fulton Undergraduate Research Initiative for maximum fundable duration (Fall & Spring 2014)

#### **Publications:**

##### *Journal Publications*

- H.N. Schwerdt, U. Amjad, J. Appel, A. Elhadi, T. Lei, M. Preul, R. Bristol, and J. Chae, "In Vitro Hydrodynamic, Transient, and Overtime Performance of a Miniaturized Valve for Hydrocephalus," *Annals of Biomedical Engineering*, vol. 43, no. 3, pp. 603–615, March 2015

##### *Book Chapters*

- J. Appel, H.N. Schwerdt, U. Amjad, R. Bristol, and J. Chae, "MEMS (micro-electromechanical-systems) for hydrocephalus treatment." *Hydrocephalus: Prevalence, Risk Factors and Treatment*, Nova Science Publishers, Jan 2016, pp. 69-82.

## AWARDS

- **ARCS Foundation Scholar, Pittsburgh Chapter, 2021**

## EDUCATION

### **ARIZONA STATE UNIVERSITY**

*Master of Science in Chemical Engineering*

**December 2018**

*Bachelor of Science with Honors: Chemical Engineering*

**May 2016**

### **UNIVERSITY OF PITTSBURGH**

*PHD Neural Engineering Track Student*

**Start: September 2021**

## LEADERSHIP AND VOLUNTEER EXPERIENCE

### **TEDxASU**

*Founding Member, Director of Finance, Speaker Curator | 2015-2018*

- Obtained TEDx license and created TEDxASU chapter eventually growing to 1500+ in student attendance
- Oversaw the Finances for TEDxASU by planning the collection and allocation of over \$10,000
- Directed and managed all speakers to ensure quality presentations, garnering over 600,000 views on YouTube

### **Refugee, Integration, Stability and Education (R.I.S.E Tutoring)**

*Director of Curriculum | 2016-2017*

- Oversaw development of scalable curriculum consistent with common core standards for grades K-12, for >20 students at 3 schools

### **Hospice of the Valley**

*Ryan House Volunteer | 2015-2017 Palliative Care volunteer | 2012-2015*

- Provided Respite and Hospice care of chronically ill children under the age of 17

## SKILLS/CERTIFICATIONS

- **Proficiency in:** Programming: SQL, JMP/JSL, Python. Lab/Technical: DOE (6 sigma), FMEA, Polymer synthesis, SEC, MALDI, NMR, SPPS, DLS, HPLC, immunology, bioreactors, chromatography, semiconductor processing (thin films), unit operations, rheology. **Six Sigma Green Belt Certified.** **Familiar with:** Programming: R, Matlab, HYSYS. Lab/Technical: PCR, microbiology, Lab notebooks, Tissue culture
- **AIChE Safety Certifications:** ELA 903-Risk Assessment, ELA 902-Runaway Reactions, ELA 904- Chemical Reactivity Hazards, ELA 905-Inherently Safer Design, ELA 907-Process Safety

**INTERESTS:** Gardening, tinkering, bouldering, computers, biology (synthetic, engineering), anime/manga, video games, cooking