MATTHEW SHONE

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Education

Bachelor of Science: Chemical Engineering (Graduation May 2020) | Minor in Chemistry, Mathematics 3.3 GPA
Ohio University

Experience

Production Engineering Intern **05/2019 to 08/2019**
BASF Corporation, Chemical Intermediates **Geismar, LA**

- Served as production engineer over the 1,4-Butanediol (BDO) Hydrogenation unit at the largest BASF site in North America and responsible for daily operations and optimization of the unit
- Responsible for developing scope and scheduling major outage work throughout the unit, including reactor catalyst changes, reciprocating equipment maintenance and heat exchanger upgrades
- Responsible for developing procedures for changes in unit operation plans such as emergency shut down of the unit for a hurricane, and shutdown during raw material outages
- Reduced non-value-added work of field operators by streamlining reading rounds in SAP resulting in 33% reduction in time required to complete
- Created a tool and model for analyzing the cooling water network flow distribution throughout BDO cluster to identify inefficiencies in heat exchangers that result in saving thousands of dollars per year
- Developed visual management boards as a tool for preemptively catching unacceptable product samples to ensure consistent and quality product is provided to our customers
- Responsible for project development of a heat exchanger to maximize efficiency by addition of turbulators, resulting in less downtime of reactors allowing for more product to be sold

Team Leader **10/2019 to 04/2020**
Environmental Design Competition **Athens, OH**

- New Mexico State University, Freeport-McMoRan sponsored, national WERC environmental design competition
- Managed team of ten people to develop a sustainable environmental design to remove health compromising levels of fluoride from calcium rich mining waters
- Lead group progress meetings to keep team on track for a successful experimental design, and report paper/presentation
- Secured funding for project development

Research Assistant **08/2017 to Current**
Center for Electrochemical Engineering Research **Athens, OH**

- Worked on a team with distinguished university professors to complete publications and research
- Prepared solutions and performed calculations to deposit various types of catalyst (Pt, Pt-Ir, Pt-C, Ni) on different material electrodes (Ni-mesh, Carbon-teflon) for use in electrolysis and fuel cells. As well as synthesized Pt nanoparticles to use as catalyst for higher electrode kinetics performance. The development of these catalyst and methods led to a 20% reduction in energy from previous electrolysis methods
- Ran experiments using a potentiostat to perform electrolysis of ammonia from wastewater to gather hydrogen gas as an alternative fuel
- Worked on projects involving Athens Wastewater Treatment Facility, Department of Defense, Department of Energy, and The Bill and Melinda Gates Foundation
- Organized the centers chemical inventory by color coding over 700 chemicals based on chemical properties and verifying the proper SDS for each chemical

Engineering Intern **05/2018 to 08/2018**
Andersen Corporation **Marion, OH**

- Used AutoCAD and Inventor Software to design an ergonomic and more dependable window bending table made out of steel
- Developed solutions to reduce the total amount of energy usage by 6.4% and save the plant around $66,000 a year in energy cost for only around $8,000 (cost of rental lift) by the conversion of LED's and utilizing the state issued energy incentives to finance the remaining balance
- Networked with engineers and local businesses to complete the mentioned energy reduction project

Involvement

AIChE (American Institute of Chemical Engineers) & CCPS (Center for Chemical Process Safety)

- Certified for 20 SAChE online courses, and a 2-Day Overview of Risk Based Process Safety course resulting in being well versed in chemical process safety and being able to recognize chemical hazards (total of 77 professional development hours)

AIAA Ohio University Rocket Team

- Responsible for using flight simulation software for recording data on expected maximum altitude, velocity and forces on the rocket to ensure a safe and successful launch

Phi Kappa Theta Fraternity

- Served as philanthropy director for the fraternity for one year and coordinated the polar plunge philanthropy that helped raise over $6,000 benefiting the Special Olympics

Other Involvement:

- National Society of Leadership and Success | Society for Biological Engineering | Volunteer at Passionworks Art Studio | Lab assistant at PPG

Publications

- (In Progress) M. Shone, M. Hariri, R. Moakhar, H. Zargarnezhad, S. Rahmani, V. Niksefat, A. Dolati, N. Moradi, "Au-Pt micro/nano-particle modified ITO electrodes for environmental voltammetric electrodetection of mercury (II) in aqueous media." (2019)