MARTIN AFFANDY

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EDUCATION

University of Washington, College of Engineering Seattle, WA
Bachelor of Science in Chemical Engineering June 2019
Early Admission (Freshman Year) Dean's List, 10 quarters Cumulative GPA: 3.68

RELEVANT EXPERIENCE

Pacific Northwest National Laboratory – Richland, United States January 2020 – Present
Post Bachelors Research Associate

- Conducted Research and testing for the catalytic upgrading of biological intermediates in batch and packed bed reactors
- Investigated metal oxide and acid-polymer catalysts for the dehydration of 2,3-Butanediol
- Performed various catalyst synthesis and characterization techniques including wetness impregnation, sieving and pelletizing, calcination, regeneration, powder x-ray diffraction, gas chromatography
- Conducted atmospheric distillation to yield gasoline and diesel fuels from hydrocarbon mixtures
- Fabricated Packed Bed Reactor and batch reactor systems through Swagelok tubing and fittings and Parr pressure vessels
- Drafted and wrote academic papers in the field of catalysis for biofuel production and abstracts for national conferences
- Performed background literature reviews and assisted with experimental design in catalysis research.

Publications

- Co-Author: Dagle, V.L, A Two-Step Approach for Catalytic Conversion of 2,3-Butanediol to n-C4-C5 Rich Olefins fuel precursors

- Collaborator: Dagle, V.L, Production, fuel properties and combustion testing of an iso-olefins blendstock for modern vehicles. Fuel, 2022 310, 122314

Holmberg Lab – University of Washington April 2018 – November 2020
Undergraduate Research Assistant

- Assembled coin cell batteries out of antimony-antimony oxide nanocrystal electrodes for testing purposes using MACCOR test software.
- Fabricated electrodes, electrolyte solutions, and negative electrode slurries to test novel materials for improvement towards battery applications.
- Developed new procedures and improved current standard operating procedures for various laboratory processes to improve work efficiency and error prevention.
- Conducted differential capacity (dQdV) data analysis to measure battery degradation mechanisms and the solid structure of electrodes.

Publications

- Collaborator: Williamson, G.A, Temperature-Dependent Electrochemical Characteristics of Antimony Nanocrystal Alloying Electrodes for Na-Ion Batteries. ACS Applied Energy Materials, 2019, 2, 9, 6741–6750

Boeing Tube, Duct, and Reservoir Center – Seattle, United States January 2019 – June 2019

Senior Design Project

- Created a predictive model to optimally recharge chemical bath tanks with 2 weeks advance notice, creating a reliable disposal system that prevents the occurrence of sudden and unplanned disposals.
- Reduced etch tank chemical usage by 12% by minimizing wasted chemicals from early disposals improving the baths economically and environmentally.

ACTIVITIES

Society of Asian Scientists and Engineers – University of Washington September 2016 - June 2019

Vice-President

- Planned and organized social and professional events to assist with the professional developments of over 100 members.
- Managed financial transactions by hosting fundraising activities and applying for travel grants to fund events and cover travel expenses from attending external SASE conferences.
- Improved public speaking skills from numerous pitches and presentation during events, club fairs and fundraisers promoting the club events and name.

ADDITIONAL SKILLS

- Technical Skills: Microsoft Office, COMSOL, CAD software (Inventor, Solidworks), Aspen Plus, MACCOR, Python.