JACOB BELDING

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WORK EXPERIENCE

Computational Material Discovery Group Undergraduate Researcher
August 2019 – Present

- Working with Dr. Li-Chiang Lin, using molecular dynamics simulations to evaluate metal-organic frameworks on the basis of pore geometry for their potential for use as reverse osmosis membranes in water purification

The Ohio State University Department of Chemical Engineering Teaching Assistant for *Separations Process*
August 2019 – Present

- Helping to instruct a course in mathematical and practical analysis of processes including distillation, adsorption, reverse osmosis, liquid-liquid extraction, leaching, evaporation, drying, and filtration

Procter & Gamble R&D Intern
May 2018 – August 2018, May 2019-August 2019

First Rotation

- Collected data using both experimentation and simulation, and analyzed using Excel and JMP
- Led design of new packaging, including ideation, concept drawing, 3D modeling, and prototyping
- Worked across disciplines to bring an understanding of materials chemistry into the packaging design process

Second Rotation

- Developed methods for use of chemical foaming additives to achieve structural color in PET as a sustainable alternative to traditional colorant, and with potential for UV protection applications
- Developed a procedure for evaluating crystallinity of foamed PET using differential scanning calorimetry
- Automated the photography and additional to digital database of experimental retains using Python and C++

The Ohio State University Department of Chemistry X-Ray Diffraction and UV-Visible Spectroscopy Technician
January 2019 – April 2019

- Performed XRD and UV-Vis and analyzed resulting data to characterize synthesized perovskite compounds
- Worked closely with chemistry students to teach and encourage interest in solar energy research

Battelle Memorial Institute Lab Analyst
June 2017 – May 2018

- Developed and revised experimental procedures based upon lab work and extensive review of literature
- Independently designed and performed modifications of living cells using CRISPR gene-editing

EDUCATION

The Ohio State University Columbus, Ohio
Bachelor of Science in Chemical Engineering, GPA 4.00, Expected Graduation May 2021

ACADEMIC PROJECT EXPERIENCE

FEH Nanotechnology and Microfluidics Design Project
January 2018 – April 2018

- Designed, concept modeled, and 3D printed a prototype nanotechnology-based lab-on-a-chip device
- Used C++ and experimental work to study yeast cell adhesion in the context of microfluidics

HONORS & ACTIVITIES

American Institute of Chemical Engineers (AIChE)

- External Vice President, maintaining communication with outside contacts and leading teams to plan events

Eminence Scholarship at The Ohio State University

- Full cost of attendance fellowship awarded to 20-25, with an emphasis on research, leadership, and service

Eagle Scout Award