Zeynep Betul Ay
zeynepay7@gmail.com (208) 596-9863 Boston, MA Portfolio/Projects : https://zeynepbay.github.io/

EDUCATION

Northeastern University **Fall 2021 – Spring 2025**
B.S. Chemical Engineering, Minor in Sustainable Energy Systems (GPA: 3.89) *Boston, MA*

SKILLS

- Coding: Proficient in C#, C++, Java, Python, HTML 5, Arduino, Simulink and MATLAB.
- Software: Proficient in AutoCAD, SOLIDWORKS, Microsoft Office, Gamry Analyst, Aspen Plus and Adobe Photoshop.
- Languages: Fluent in Turkish, and English. Basic conversational with French.

WORK EXPERIENCE

Electric Hydrogen **Natick, MA**
Research & Development Engineering Co-op *January 2024 – August 2024*
- Synthesized and characterized catalyst inks for electrochemical cells; refined coating processes for catalyst-coated membranes.
- Led efforts to scale up coating processes, coordinating cross-functional discussions to ensure reproducibility and efficiency at larger scales.
- Utilized Scanning Electron Microscopy (SEM) to analyze catalyst surface morphology and ensure material quality.
- Conducted performance testing using battery test equipment and electrochemical impedance spectroscopy (EIS).
- Prepared and presented technical reports to senior leadership, influencing design iterations for electrolyzer technology.

American Gas Association **Washington, D.C.**
Operations & Engineering Intern *June 2023 - August 2023*
- Utilized data analysis tools and techniques to uncover patterns and insights from peer review data, contributing to informed decision-making and strategic planning for hydrogen-related projects.
- Created a comprehensive database tracking trends in peer reviews for companies within the natural gas and hydrogen energy industries.
- Developed data visualization dashboards that communicated trends to both technical and non-technical stakeholders.

Transaera Inc. – Greentown Labs **Somerville, MA**
Chemical Engineering Intern *September 2022 – December 2022*
Chemical Engineering Co-op *January 2023 – June 2023*
- Led chemical development of desiccant-based coating for novel cooling application, resulting in energy savings in HVAC systems of up to 40 percent.
- Established process parameters and key process indicators to optimize coating process, ensuring a repeatable & consistent protocol.
- Characterized different desiccant powders, slurry, and coatings using a dynamic vapor sorption instrument, X-ray crystallography instrument, viscometer, FTIR spectroscopy, pH meter, etc.
- Developed and compared isotherms of 70 samples and characterized hysteresis of each sample.
- Enacted key safety procedures and regulated chemical inventory.

Biofilm Engineering Research Group at Washington State University **Pullman, WA**
Undergraduate Research Assistant *June 2019 – June 2021*
- Isolated, organized, and analyzed redox-mediated electron transfer rates to determine fundamental scientific understandings of how to stimulate or, depending on application, limit electrochemically-induced cell growth rates.
- Researched and presented applications of research in bioremediation, wastewater treatment, biofuel and biochemical production, microbial fuel cells, etc.
- Organized data from biofilm reactors to build mathematical models that can be used to predict rates of biofilm cell growth using Microsoft Excel and MATLAB.
- Regulated five biofilm reactors with data analysis of potentiostats collected from EChem Software

VOLUNTEER EXPERIENCE

Boston Turkish Cultural Center (TCC) **August 2021 – Present**
Tutor/Community Volunteer *Boston, MA*
- Tutor middle school and high school students (English Language Learners) in the Turkish community of Boston a variety of subjects including but not limited to: English, Mathematics, Chemistry, and Biology.