**Zeynep B. Ay**

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**EDUCATION**

**Northeastern University Fall 2021 – Spring 2025**

*B.S. Chemical engineering, Minor in Sustainable Energy Systems**Boston, MA*

**Washington State University (Honors College) Fall 2020 – Spring 2021**

*B.S. Chemical engineering, Minor in Computer Science Pullman, WA*

**SKILLS**

* Coding: Proficient in C#, C++, Java, Python, HTML 5, Arduino, Simulink and MATLAB.
* Software: Proficient in AutoCAD, SOLIDWORKS, Microsoft Office, Gamry Analyst 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*

* 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.