

# Fiona Shortt

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*Chemical engineer advancing ceramic thermal protection systems for extreme environments, with hands-on experience taking materials from lab-scale development to full industrial production*

## Educational Experience

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### Massachusetts Institute of Technology – Chemical Engineering B.S.

- Proficient in Chemical Process Design, Thermofluid Dynamics, Chemistry (Organic, Inorganic and Polymer), Programming (for Engineering, Web Design and Data Analysis), Organizational Processes and Patent Law
- Minor in Management from MIT Sloan School of Management; Concentration in Writing

## Professional Experience

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### Materials Informatics – GE Vernova (Gas Power) – June 2023 - Present

- *Developing probabilistic surrogate models to predict thermal and mechanical behavior of advanced thermal barrier coating (TBC) systems under high-temperature turbine conditions, enabling rapid design iteration and material optimization for extreme environments*
- Qualified and validated critical rare-earth ceramic feedstock materials to enable supplier industrialization (**4× scale-up**), ensuring phase stability, thermal performance, and material consistency under production-scale conditions
- Designed and automated a co-precipitation ceramic synthesis process, eliminating **3+ hours** of manual operation, reducing operator exposure and improving material production repeatability
- Drove fleet data analysis with Python, JMP and PyTorch to determine root cause (RCA) of a **\$100 million** power-train failure; led weekly presentations with internal and external VPs, technical consultants and chief engineers

### Capstone Project Team Lead – MIT Chemical Engineering – September 2024 – December 2024

- Led end-to-end design and simulation of an industrial chemical process (ethylene oxide hydration to ethylene glycol) using ASPEN, achieving a 4% reduction in energy consumption through reactor redesign (CSTR optimization) and separation train simplification

### Research Lead – MIT Nuclear Science and Engineering Department – January 2023 - May 2023

- Evaluated **five** advanced nuclear coolants for their safety, longevity and affordability as alternatives to the traditional water coolant in order to enhance nuclear cooling while mitigating risk of chemical fouling and radioactive decay

### Engineering Intern – Emulsion Products of Alaska (A Colas Company) – May 2022 - August 2022

- Analyzed energy expenditure data across six polymer-modified asphalt production plants and programmed web-based calculator with JavaScript and HTML to target energy usage reduction, resulting in a **30%** energy cost decrease
- Identified a **\$90,000** weekly discrepancy between production records and inventory analyses through a system of mass balances and volume differentials

### Business Development Intern – Global Common – January 2022

- Established the feasibility of biogas to fuel conversion through an analysis of capital expenditure, operating expenses, and design constraints as part of potential client research for biogas capture and repurpose

### Product Development Intern – Symbio Syn – September 2021 – May 2022

- Conducted a series of 15 informational interviews with doctors, professors and patients as a prerequisite for a seed grant proposal to establish company's investment potential from early-stage venture capitalism firms

## Leadership Experience

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### Operations Leader – GE Vernova-MIT Alliance – July 2025 – Present

- *Drive a CEO-directed global talent strategy by aligning recruiting events, internal leadership meetings, and partner announcements across multiple regions to support the hiring of **100 MIT interns** in 2026*

### Communications Leader – GE Vernova 2030 Engineer Initiative – November 2025 – Present

- *Own the communications for a VP of Engineering-sponsored initiative, synchronizing cross-team efforts and scaling organization-wide messaging through digital platform development and technical forums*

### Co-President – MIT Senior Week – July 2023 – May 2024

- Directed a team of 12 members through the booking, ticketing, and scheduling of **10** events for the MIT Senior Week
- Optimized a **\$100K** budget through vendor comparisons, contract negotiations, and tiered ticketing system to ensure all students had access to multiple events across the week

### VP External and Finance – MIT American Institute of Chemical Engineers – June 2022 – May 2024

- Facilitated communication between the corporate relations executive, employer contacts, and the greater MIT community to support career pipeline development
- Formulated the 2023-2024 academic year budget for MIT AIChE through a cost analysis of prior expenditure, forecasted expenses, and organizational growth goals