Kaitlyn Yanna

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EDUCATION

Massachusetts Institute of Technology (MIT) — Cambridge, MA
Bachelor of Science degree in Nuclear Science and Engineering — May 2025
Bachelor of Science in Global Studies and Languages (Spanish Studies) — GPA: 4.8/5.0

Madison Area Technical College (MATC) — May 2021
Graduated from the two-year STEM Academy in one year — GPA: 4.0/4.0
Inducted into Phi Theta Kappa
Conducted independent research as a part of MATC's Honors Program

University of Wisconsin-Platteville — June 2018
Completion of Introduction to Engineering Products course

RESEARCH EXPERIENCE

Plasma Science and Fusion Center — March 2022 - Present
Undergraduate researcher

- Designer of the ECE diagnostic for SPARC: edited and wrote data-verified code in Python to assess analytic theory for predicting and modeling the optical system and its gaussian beam parameters
- Engineering solutions within physical and spatial restraints in collaboration with other researchers
- Conducted research on the degradation of plasma facing mirrors used in ECE by designing and running experiments on a replica of ASDEX's optical system to model gaussian beam parameters to verify the model with collected and analyzed data
- Conducted research on the Thomson-ECE Discrepancy
- Reviewed academic papers about ECE diagnostics to conduct research on the Thomson-ECE Discrepancy to learn how to interpret data from ECE diagnostics

CIEMAT — May 2023 - Present
Intern at the Laboratorio Nacional de Fusión

- Characterized the phase difference between the density and electrostatic potential in the TJ-II stellarator with the heavy ion beam probe diagnostic to study how plasmas lose energy via turbulence
- Created and improved MATLAB codes to realize that the data is approaching the necessary quality
- Produced easily-readable graphs that inspired and informed future experimental campaigns

MATC STEM Center — Aug. 2020 – Aug. 2021
Hired Worker/Independent Researcher

- Conducted independent research on optimization of composting
  - Engineered an in-vessel rotary drum bioreactor to analyze the effects of uniform turning
  - Collected and analyzed data via wiring an Arduino ESP8266, v1.2 capacitive soil moisture sensor, and a DHT22 humidity and temperature probe
  - Completed a literature review on current methods of composting
  - Wrote a report that concludes that the bioreactor and Bokashi method provide optimal moisture, temperature, and humidity.
- Manipulated 3D printers to achieve even and smooth printing; deconstructed and reconstructed the extruder assembly; optimized the heat of the nozzle and bed on Cura LulzBot software
- Fostered the interest of 25 underprivileged youth in STEM; as a Camp Lead implemented dynamic learning in a week-long STEM Camp

Terrascope: Solving Complex Problems — Sep. 2021 – Dec. 2021
Virtual Arrival Lead

- Conducted collaborative research on making long distance transportation more sustainable
- Researched, assessed, and conducted an informal feasibility analysis on virtual arrival
- Edited other Terrascopers' research to improve transparency and reader comprehension

RESEARCH INTERESTS

- Plasma diagnostics
- Thomson-ECE Discrepancy
- Turbulent particle flux

LEADERSHIP EXPERIENCE

Undergraduate Student Advisory Group for Engineering Oct. 2022 – Present

Member

- Innovating ways to encourage first year MIT students to discover less common areas of engineering
- Conceptualized an *Intro to Engineering* course to encourage first years to explore engineering majors
- Collaborated with peers to conceptualize ways to enhance the undergraduate student experience in the School of Engineering

Aerial Fitness Club Sept. 2022 – Present

Co-president

- Organized social media presence on social media platforms to promote the club and encourage others to join
- Secured $500 in funding by writing applications to foundations and funds to financially support this brand-new club
- Lead peers to conceptualize ways to develop the club

Project Manus Feb. 2022 – Sept. 2023

Student Mentor

- Taught first-year students on proper use of manual fabrication machines so that they feel empowered to use makerspaces
- Maintained high standards of shop cleanliness, supervised and supported other students in their projects

Nuclear Science and Engineering Recruitment Jan 2023 - Present

Student Ambassador

- Innovate creative and eye-catching short videos to encourage student and public interest in NSE
- Script, direct, act, film, and edit videos in collaboration with 5 peers using iPhones and Adobe products

Visiting Committee Undergrad Student Delegation Aug. 2022 – Oct. 2022

Student Delegate for Nuclear Science and Engineering

- Successfully advocated to publicize alternatives to computational courses and for easier student access to focus area subjects as recommended by the department
- Cohesively wrote and prepared a survey, report, and presentation to faculty and staff in collaboration with 5 other students on the current state of the department

WORK EXPERIENCE

County Creek Bed Country Farmacy Sep. 2018 – Aug. 2021

Crew Lead with specializations in Ticket Sales, Pumpkin Sales, Strawberry Sales, & Concession Stand

- Collaborated with a diverse range of stakeholders including customers, owners, senior management, and coworkers
- Developed basic IT skills to trouble shoot the connection between the tablet and the chip reader to completing transactions

McDonald's July 2020 – July 2021

Manager Candidate, Crew Trainer, Crew Member

- Communicated with a diverse range of stakeholders including customers, senior management, and coworkers
- Maintained high standards of customer service during high volume, rapidly evolving conditions
- Trained 5 new employees on the policies, protocols, and procedures

Piggly Wiggly Sep. 2019 – March 2020

Lead Cashier, Stock Person, Dairy Department Leader

- Promoted three times in the span of 5 months
- Detailed focused worker; managed the flow of store's stock and building sales displays

RECOGNITION

- Wisconsin Mathematics, Engineering & Science Talent Search Finalist for "outstanding success with [mathematical] problems", 2018 & 2019
- Society of Women Engineers' Certificate of Merit for "excelling in STEM courses," December 2019

SKILLS

- Software: Proficient in Python, MATLAB; Knowledge of JavaScript, IDL, Adafruit, Arduino
- Lab: Knowledge of designing experiments; Knowledge of prototyping; Knowledge of summarizing academic and white papers; Knowledge of summarizing research findings in a report; Knowledge of manual and digital fabrication
- Languages: Proficient in Spanish; Knowledge of French

ACADEMIC REFERENCES

Prof. Anne White (Research advisor, B.Sc. advisor)
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Nathan Howard (Research collaborator)
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