Kristen Umbriac

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Education

Princeton University – *B.S.E., Mechanical Engineering* *August 2020 – May 2024*

- **Intended Certificates:** Robotics and Intelligent Systems, Computer Science

Work Experience

FORME – *Mechanical Engineering Intern* *June 2022 – August 2022*

- Performed surface & 3D modeling, created engineering drawings in Creo, and led prototyping and development phases for product that launched in August 2022
- Submitted Engineering Change Requests in the process of reviewing and updating documentation in Arena PLM
- Completed detailed tolerance analysis spanning 12+ components to eliminate unwanted rocking movements

Kaatsbaan Cultural Park Spring Festival – *Production Intern* *May 2021 – June 2021*

- Assisted with sound & lighting system setup and operation across 3 separate performance stages
- Rigged up impromptu sound setup indoors during a flash thunderstorm, allowing the show to continue

University of Michigan Automotive Lab – *Research Intern* *July 2018 – August 2018*

- Analyzed data captured on prototypes of self-driving vehicles under the direction of Prof. Anna Stefanopoulou
- Processed and visualized over 500 datasets containing raw positional and temporal data, using MATLAB to determine general trends and identify root causes of anomalies
- Presented a summary of findings to professors and postdocs on a weekly basis, demonstrating effective communication skills

Extracurriculars & Projects

Princeton Racing Electric Formula Vehicle SAE Team – *Mechanical Team; Brake Systems Lead* *January 2022 – Present*

- Redesigning system mounting layout, reducing required surface area by 10%; machining new parts on mill and CNC
- Replacing old brake fluid lines and fittings to incorporate a pressure sensor and gather/analyze data
- Collaborating with interdisciplinary subteams in weekly design reviews and manufacturing of full vehicle assembly

Search & Rescue Robot Team Project (MAE 322 Mechanical Design) *September 2022 – December 2022*

- Designed in Creo a 3D-printed claw & ramp mechanism to autonomously deliver a 1kg 'med kit'
- Performed FEA in Creo in order to optimize axle, back leg, and medkit drop claw for both low weight and cost
- Focused on creative and collaborative design process with team to elegantly navigate complex obstacle course requirements
- Finished 1st place in end-of-year competition as the only team to complete the full course & autonomously traverse obstacles

Cantilevered Wing Team Project (MAE 321 Engineering Design) *January 2022 – May 2022*

- Performed Finite Element Analysis and sensitivity studies over several iterations in order to optimize for weight and strength
- Collaborated with teammates to create engineering drawings, manufacture parts, and summarize design process in final report

Princeton University Ballet – *Dancer, Social Chair ('22-'23), Production Manager ('21-'22)* *January 2021 – Present*

- Participating in weekly class/rehearsals in preparation for performances each semester; choreographed for Fall '22 show
- Positive & energetic leadership style in organizing frequent company-wide social events

Relevant Skills

2D/3D CAD - Creo, Windchill, surface modeling, FEA, engineering drawings, GD&T; **Machining** - manual mill, lathe, CNC, 3D printing, TIG welding; **Programming** - MATLAB, Python, Java, C++, Mathematica, LaTeX; **Electronics** - soldering, breadboards, multimeter; **Microcontrollers** – Arduino, Particle Photon; **Microsoft Office, Excel; Italian** - conversational fluency

Honors & Awards

Princeton University Program in Dance – Outstanding Work by a First Year (2021); National Merit Scholar Finalist (2020); Presidential Scholar Candidate (2020); AP Scholar with Distinction (2019)

Member, Society of Women Engineers (SWE); Member, American Society of Mechanical Engineers (ASME)