Joseph Ruan

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Education

Purdue University — West Lafayette, IN
Bachelor of Science - Mechanical Engineering — *May 2027*

Experience

Purdue Electric Racing — West Lafayette, IN
Student Designer — *Aug. 2024 – Present*

- Designed chassis closeouts using NX to isolate cockpit and driver from potentially hazardous road debris
- Validated closeouts using ANSYS to match specified rigidity targets as well as for aerodynamic purposes

Collaborative Robotics Lab — West Lafayette, IN
Research Assistant — *Aug. 2024 – Present*

- Helped design, assemble, and program robot to measure soil microbiome emissions; presented to USDA
- Developed low-cost inertia measuring and position estimation solutions to study animal behavior patterns
- Designed soft robotic limbs to assist in locomotion when traversing difficult terrain

Global Active Problem Solving (GAPS) — West Lafayette, IN
Camera Designer — *Aug. 2024 – Present*

- Collaborated with Universidad del Norte to monitor the ecosystem around the university
- Worked on a low-cost wildlife camera solution utilizing bird feeders to hide a custom solution to prevent theft

Miso Mechanics 9442 — Seattle, WA
Captain & Lead Programmer — *Aug. 2023 – May 2024*

- Founded rookie FIRST Robotics team and fundraised over $30K for competition and robot costs
- Designed multiple subsystems on award-winning competition robot, ranking 20th offensively out of 3,500 teams
- Developed computer vision system using PhotonVision to detect game objectives and utilized it in autonomous routines, allowing for real-time decision making to aid in gameplay

BSA Troop 647 — Mercer Island, WA
Eagle Scout & Patrol Leader — *June 2018 – June 2024*

- Planned and led a major construction project to remodel charter organization's property
- Organized bi-weekly outings and service projects for patrol and Troop members

Projects

Soil Microbiome Measuring Robot | *Onshape, Python* — Oct. 2024 – Present

- Designed slip ring assembly for reel of robot to allow for easy unspooling
- Developed data parsing script to sync timestamps of photos and sensors for more precise research
- Presented findings at the United States Department of Agriculture's Ames National Laboratory

Wildlife Camera | *Onshape, Unix* — Aug. 2024 – Present

- Designed easily manufactured wildlife cameras using "bird feeder" housings to prevent theft
- Set up an on-site in-house storage solution to fulfill video and data storage needs

Streaming Service | *Caddy, Cloudflare Tunnels, DNS, Docker, Unix* — June 2023 – Present

- Utilized various public Docker containers to build a streaming service used by 50K active users
- Implemented user SSO with AniList and Trakt APIs to automatically synchronize user data to service
- Employed reverse proxy and various web technologies to maintain service stability and load-balance

Technical Skills

CAD: Onshape, Solidworks, NX, ANSYS
Computer Languages: Java, Python, C, HTML, CSS, Bash,
Developer Tools: Git, Docker, Google Cloud Platform, Microsoft Azure, Amazon Web Services
Languages: English (Native), Chinese (Advanced)