

# Tarun Prakash

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## EDUCATION

**Purdue University**, West Lafayette, IN

Bachelor of Science in Mechanical Engineering

Minor in Organizational Leadership; Certificate in Entrepreneurship & Innovation

Expected May 2024

GPA: 3.21 / 4.00

## PROFESSIONAL EXPERIENCE

**Tesla**, Palo Alto, CA

*Mechanical Design Engineering Intern*

May 2022 – August 2022

- Designed hardware for a motor dynamometer test considering lubrication, sealing, & handling using CATIA & ANSYS
- Evaluated next-gen drive unit quality control equipment to validate stator electrical metrics for production vehicles
- Managed the assembly of 3 prototype drive units, ensuring adherence to design specifications and project timeline
- Measured partial discharge inception voltage at 20 environmental conditions to validate magnet wire insulation design
- Performed 12 thermal & tensile tests on bonded wire samples to compare material properties & select optimal configurations

**Maurice J. Zucrow Laboratories**, West Lafayette, IN

*Propulsion Test Engineer*

May 2021 – May 2022

- Operated 100+ tests on LabVIEW with H<sub>2</sub>O<sub>2</sub> fueled thrusters and subscale test articles with various catalyst beds
- Analyzed performance data in MATLAB and Excel to determine if reaction catalyst beds were meeting design standards
- Developed a heat exchanger and data acquisition system for testing a Hydrogen/GOx rotating detonation rocket engine

**Nize Systems**, Pleasanton, CA

*Founder & Chief Operating Officer*

August 2018 – January 2022

- Founded a team of 15 engineers, developers, & designers to design an RFID consumer electronics product to automate the attendance process for K-12 schools with an end goal to save them more than \$100,000 of state funding each academic year
- Designed and constructed a 3D printed case and custom through-hole PCB for a fully integrated solution using NX and KiCAD that improved student, parent, teacher, and administrator satisfaction with attendance procedures and outcomes

**Ray W. Herrick Laboratories**, West Lafayette, IN

*Undergraduate Research Assistant*

August 2021 – January 2022

- Formulated mixtures of polymer-bound materials for large-scale manufacturing of high solids loaded composite materials
- Performed shear viscosity tests on various material systems to characterize flow impacts on vibration-assisted 3D printing

## LEADERSHIP EXPERIENCE

**Purdue Space Program**, West Lafayette, IN

*Technical Director*

December 2021 – January 2023

- Coordinated 6 aerospace related projects and L1 launch certifications under the Purdue Space Program student organization
- Mentored 200+ aspiring new members and guided them towards technical projects that aligned with their skills and interests
- Enforced safe practices and procedures throughout design, build, & test ops for all technical teams and L1 launch events

*Propulsion Lead*

August 2020 – January 2023

- Launched an LNG/LOX fueled rocket twice in one weekend, setting the record for first reflight of a collegiate liquid rocket
- Leading development of a 2,000 lbf Ethanol/LOx fueled engine, propelling a rocket targeting an apogee of 75,000 ft
- Redesigned lower airframe and fin can assembly in SOLIDWORKS to reduce weight by 10 lbs and increase assembly ease
- Created a 3,000 lbf test stand P&ID in Visio to visualize fluid system designs and enable rapid testing of propulsion systems
- Directed trade studies on various propulsion topics including injectors, composite chambers, cooling methods, and igniters

## PROJECT EXPERIENCE

**Audi E-Tron RC Car**

*Project Manager & Engineer*

January 2023 – Present

- Designed an RC car using CAX tools including assembly parametrics, dynamic motion analysis, & topological optimization
- Analyzed vehicle components using FEA in NX Nastran and CFD in STAR-CCM+ to reduce assembly mass & shell drag

**Hammer Down!**

*Project Manager & Engineer*

August 2022 – December 2022

- Designed crank & lever mechanisms for a carnival game using Creo Parametric with top-down motion skeleton modeling
- Wrote C++ for an Arduino to control stepper motor based on button input and display final game score when time elapses

**Awards:** 2022 Dreammaker & Risktaker, Purdue ME Toy Design Best Market Potential Award, Eagle Scout Rank, 1<sup>st</sup> Dan Black Belt