

DHAN PRASAD PRADHAN

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EDUCATION

Wichita State University

Wichita, KS

MS in Mechanical Engineering (Thesis Option), GPA 3.69/4.00

Fall 2024 – Fall 2026 (expected)

Relevant Coursework: Modelling of Engineering Systems, Mechanical Control Systems, Robust Control Systems, Applications of FEM, Computer-Aided Analysis of Mechanical Systems, Characterization and Modelling of Batteries

Tribhuvan University

BE in Mechanical Engineering

Nov 2017 – Jul 2022

WORK EXPERIENCE

Wichita State University

Wichita, KS

Graduate Research Assistant, Clean Energy and Research Innovation Lab

Aug 2024 – Present

- Developing an electrochemical oxygen sensor for sub-ppm detection, optimizing electrode parameters to improve S/N ratio
- Characterized electrode kinetics and interfacial behavior using Electrochemical EIS, CV, CA [extracting exchange current densities via Tafel analysis/identifying limiting mechanism]
- Quantified formic acid from CO₂ reduction by HPLC, establishing calibration curves and Faradaic efficiency for the reaction.

Yatri Motorcycles

Kathmandu, Nepal

Mechanical Design Engineer

Dec 2022 – Jul 2024

- Optimized rear sprocket mass by 650 gm (2100 before optimization) for P1 electric motorbike, braking system design, design of experiment of for testing and validation to comply with IS14664:2010
- Mechanical component design and drafting (ASME Y14.5) in Autodesk Inventor, DFMA and FMEA of rear sprocket, plastic PCB housing (IP65), and brake lever
- Designed and validated (ANSYS Fluent and empirical methods) fin heat exchanger for motor controller and reduced the high torque operating temperature by 10 °C

Balaju School of Engineering and Technology

Kathmandu, Nepal

Teaching Assistant

Jun 2023 – Dec 2023

- Conducted lectures and grading of Engineering Drawing course for diploma level, with curriculum spanning 2D projection theory (orthographic, auxiliary, and sectional view) and 3D visualization (isometric, oblique, and pictorial drawing)

National Innovation Center

Kathmandu, Nepal

Mechanical Design Engineer (Intern)

Jun 2022 – May 2022

- Airfoil design and optimization (XFLR5) for high-altitude, near-terrain flight conditions unique to Nepal's topography, accounting for low air density (3,000 m+) and turbulent boundary-layer effects; evaluated twin-tractor and tractor-pusher airframe configurations
- Conducted thrust bench testing and performance characterization of UAV propulsion motors for thrust-to-weight ratio and efficiency across operating conditions
- Programmed autonomous flight paths, landing zones, and GPS geofencing, and authored the test protocols for 20-hours of flight-testing campaign, validating GPS position accuracy for autonomous recovery and landing

TECHNICAL SKILLS

Modeling and Simulation: Simulink, Simscape Multibody, ANSYS (Fluent, Static Structural), MSC Adams, XFLR5. **CAD:** CATIA V5/3DEXPERIENCE, Autodesk Inventor, SolidWorks. **Programming and Embedded:** C++, Python, Arduino/ESP32, Pixhawk flight controllers, ArduPilot (Mission planner). **Fabrication:** CNC laser/plasma machine and lathe operation, 3D printing, TIG and MIG welding.

Lab and Instrumentation: Electrode Characterization—Electrochemical Impedance Spectroscopy (EIS), Cyclic Voltammetry (CV), Chronoamperometry (CA); Gamry Interface 5000 potentiostat/galvanostat; High-Performance Liquid Chromatography (HPLC)

KEY PROJECTS AND COMPETITIONS

Wildlife Conservation Drone (Fixed-Wing UAV)

Final Year Project, Tribhuvan University (Jun 2021 – May 2022)

- Designed and fabricated a prototype fixed-wing UAV for wildlife surveillance and anti-poaching support, integrating camera payloads within CG and stability margins
- Validated missions in SITL before flight and flew as pilot-in-command over a 433 MHz telemetry link; diagnosed performance from .BIN dataflash logs to drive tuning across airframe iterations
- Presented findings on fixed-wing UAV wildlife surveillance at the Conference on Recent Trends in Science, Technology and Innovation abstract published in conference proceedings.

Prototype-Class Battery Electric Vehicle

Student Team for Shell Eco-marathon 2021 (Jan 2021 – July 2021)

- Led the technical direction of 10-member multidisciplinary team designing battery-electric Prototype-class vehicle for maximum energy efficiency, representing Thapathali Campus in Asia Pacific and Middle East region.
- Designed and fabricated a 15 kg aluminum-alloy (5052) chassis, sizing members against driver-load, braking, and roll-over cases per Shell's technical requirements.
- Developed the aerodynamic body shell, reducing drag coefficient from 0.321 to 0.100 through iterative CFD analysis (ANSYS Fluent) and frontal-area reduction

- Compiled and presented vehicle compliance documentation (braking, driver egress, roll bar, electrical isolation) for Virtual Technical Inspection.

Boeing Aeromodelling Competition

Student Team Lead and Mentor (2019/2023) IIT Bombay, India

- Led student team designing and fabricating a hand-launched RC aircraft (1.2 m wingspan, T/W = 0.8), carried 200 g payload securing top 10 place among 40+ regional teams.
- Mentored following year's team through full design cycle—sizing calculations, aerodynamic analysis in XFLR5, release-mechanism design, and RC flight training—to runner-up finish (carried and dropped 550 g payload) among 40+ teams

Robotics Competitions

Nepal and India, 2018 - 2022

- **Winner** (2022), **Runner-up** (2020), Mechtrix Glider Competition, IOE Pulchowk Campus; **Runner-up**, national selection round, Cozmo Clench manual gripper robot, Techfest 2019, IIT Bombay; **Semifinalist**, Aqua-Boat Challenge, Kathmandu University (2018); CNC drawing machine Mechtrix Exhibition, Pulchowk Campus (2018); AT-Hackathon 2018, powered wheelchair for users with mobility impairments, Thapathali Campus (2018)

POSITIONS AND RESPONSIBILITIES

Executive Member

Robotics and Automation Center, Thapathali Campus (Jan 2019 – Dec 2021)

- Elected to the executive committee in 2019 after two years as a member, taking responsibility for the club's annual robotics exhibition, member intake, and inter-college and international competitions.
- Secured funding through partnerships with student bodies, sponsor, and campus administration, sustaining club operations and annual student/member training programs

Technical Team Lead

Shell Eco-marathon 2021, Thapathali Campus (Jan 2021 – Dec 2021)

- Directed technical review meetings and component-level design validation across the team's competition build cycles
- Established knowledge-sharing and meeting with national and international Eco-marathon teams, conducted member intake and training for CAD/fabrication training to build technical capacity for successive seasons

Trainer (Annual Robotics Week)

Robotics and Automation Center, Thapathali Campus (2022, 2023)

- Taught model aircraft design fundamental to junior members—stability principles, component sizing, payload calculation, and aerodynamic analysis in XFLR5
- Instructed on material selection and fabrication techniques for model aircraft prototyping, feeding directly into the team's Techfest competition entries

PUBLICATIONS AND PRESENTATIONS

- D.P. Pradhan and A. Shrestha, "Wildlife Surveillance in National Parks Using Fixed-Wing UAVs: Making Monitoring Economical," presented at Conf. on Recent Trends in Science, Technology and Innovation, Prithivi Narayan Campus, Pokhara, Nepal, 2023, Book of Abstracts, p. 53
- D.P. Pradhan, "Reusable rockets: The future of space exploration," *Industrial Vision*, vol. 9, pp. 46-47, 2024