# Parikesit Pandu Dewanatha

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Portfolio

LinkedIn

## *Objective*

Mechanical engineering graduate specializing in system modeling and controls, seeking a full-time role in Mar 2025.

## *Education*

**Purdue University**, West Lafayette, IN                                                                     **Jan 2023 – Feb 2025**
**Master of Science in Mechanical Engineering,** 3.91/4.00
**Research Concentration:** System Modeling and Controls of Thermal Systems

**Purdue University**, West Lafayette, IN                                                                     **Aug 2018 - Dec 2022**
**Bachelor of Science in Mechanical Engineering**, 3.80/4.00
**Minor:** Global Engineering Studies

**Study Abroad: Global Engineering Alliance for Research and Education (GEARE):**

**Karlsruhe Institute of Technology**, Karlsruhe, Germany                                       **Jan 2022 - Aug 2022**

## *Graduate Research*

**Master's Thesis: Battery Electric Vehicle (BEV) Thermal System Modeling**          **Jan 2024 – Feb 2025**
- Developed a novel closed-loop transient simulation tool for BEV thermal management systems (TMS) to optimize design concepts up-front, considering performance, topology and geometric constraints. The tool streamlines early-stage design decisions and ensures optimal system performance.
- Leveraged graph theory to model complex thermodynamic components using physics-based and first principles methods in Python, enabling modular and scalable system analysis.
- Verified and validated reduced-fidelity models against high-fidelity Dymola model at component, cycle and system levels, achieving comparable transient and steady-state responses and ensuring model accuracy.

**Closed-loop Analysis of Thermal Energy Storage (TES) Device Arrangement in a TMS**          **Aug 2024 – Dec 2024**
- Modeled phase change material (PCM)-based TES arrangements using graph theory in MATLAB. Evaluated their impact on TMS closed-loop response and identified optimal configurations to enhance thermal performance.
- Applied Model Predictive Controller (MPC) to optimize heat dissipation, improving system efficiency across all TES arrangements.
- Presented research at ITherm 2024 conference; published by IEEE and awarded runner-up for best poster.

## *Work Experience*

**ZF Friedrichshafen AG: ADAS Division, Validation and Test Engineer Co-Op**          **Jan 2022 – Apr 2022**
- Designed and implemented a Python tool to control the ventilation system of the ZF ProAI supercomputer, featuring an intuitive heads-up display. The tool enhanced efficiency during NVH testing with customers in the automotive industry.
- Automated test result analysis using Python, generating graphical figures, data statistics, and comprehensive reports. The workflow improved reporting speed and accuracy, becoming a standard across the division.

**ZF Friedrichshafen AG: CV Division, Systems Engineer Co-Op**          **Jun 2020 - Aug 2021**
- Conducted 'End of Line' HIL testing for 50 EPHS steering system prototypes, ensuring readiness for vehicle testing.
- Created a testing protocol to validate EPHS shaft alignment using IQAN Design and will be implemented in future commercial production.
- Validated EPHS thermal and voltage protection mechanism by modeling derating functions in MATLAB and Simulink. Identified safety function discrepancy in prototype, leading to supplier software adjustments.

## *Undergraduate Research*

**Drop In Bio-Sensor (DIBS) Undergraduate Research Project, Electronics Lead**          **Aug 2021 – Dec 2021**
- Enhanced Arduino-based light sensor for E-Coli detection by optimizing performance under low-light conditions through sensitivity analysis and improved data logging via PCB design updates.

## *Skills & Expertise*

**Software:** Python, MATLAB, Simulink, Dymola, Arduino, LabView, IQAN, C-Programming, CAD, FEA
**Expertise:** System Modeling and Controls, Component/System Level Validation, HIL/SIL Testing, System Optimization
**Involvements:** Purdue Electric Racing – Aerodynamics, Society of Asian Scientists and Engineers – Marketing Chair