# Ishaan Parikh

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## EDUCATION

**Cornell University,** College of Engineering, Ithaca, NY **Expected May 2028**
Bachelor of Science, Electrical and Computer Engineering, ***GPA:*** 3.78
***Relevant Courses:*** Digital Logic and Computer Organization (Verilog), Differential Equations, Physics 2: E&M

## PROFESSIONAL EXPERIENCE

**Matter Motor**, Ahmedabad, India, *Research Intern (part-time)* **Mar 2022 – Jun 2024**

- Created a novel custom real-time object detector based on the primary data, built upon the YOLO v5 architecture which accurately detected on road objects from vehicle cameras. Implemented model on Snapdragon 700 SOC.
- Developed an intuitive application which scans for weld faults in Battery Management Systems (BMS) using YOLOv8. Implemented app in production line resulting in **60% reduction** in in-line checking time.
- Formulated parameters in laser beam welding through analysis of copper properties. Observed an increased, **90% joint efficiency** for the Cu-Hilumin battery busbar connections used in Matter Motor electric motorcycles.

## TEAM EXPERIENCE

**Cornell Electric Vehicles Project team,** Ithaca, NY **Oct 2025 - Present**

- Designed 2 custom Printed Circuit Boards (PCBs) on Altium Designer for strain gauge, and RPM sensor.
- Created custom Simultaneous Localization and Mapping (SLAM) approach for self-driving perception.
- Developed embedded control and sensor pipelines on RP2040-based systems used in the car.

**Threads4Good,** Ahmedabad, India, *Co-Founder* **Jun 2023 – Jun 2025**

- Upcycled 3,000 kg textile waste to 2,600 school bags which were donated to underserved children in rural India.
- Handled budgeting and secured $2.4k by delivering pitches to textile firms and winning social impact grants.
- Led a 15-member volunteer team and coordinated a workforce of 25+ workers to manufacture and distribute bags

## RESEARCH EXPERIENCE

**Quantum Research,** Nirma University, Mentor: Prof Nagendra Gajjar, Ahmedabad, India **June 2025 – Present**

- Built and benchmarked Quantum ML(QML) models in Pennylane, achieving within **5–15%** of classical accuracy.
- Compared Quantum vs Classical training, finding **2-10x** slower runtimes due to simulation and gradient overhead.
- Evaluated across regression, image, and video tasks, observing ~10-20% drop in accuracy across all QML tasks.

**Sodium-ion Battery Research,** Mentor: Stepan Ozerov, PhD student, Purdue University **Aug 2024 – Jan 2025**

- Analyzed economic and electro-chemical shortfalls of Lithium-ion batteries compared to Sodium-ion batteries.
- Evaluated feasibility of Sodium-ion batteries in grid power storage, electric vehicles, and consumer electronics.
- Compared characteristics of technologies to see where Sodium-ion batteries could replace Lithium-ion batteries

## SOFTWARE PROJECTS

**Polymer Prediction** **Jun 2025 – Aug 2025**

- Developed Graph Neural Network (GNN) models in PyTorch Geometric to predict key polymer properties.
- Used LAMMPs for molecular dynamics simulation to increase testing data and further benchmark performance.
- Analyzed model on PyTorch, and achieved ~95% accuracy (5% MSE) using pretrained transformer models

**X-Ray Pneumonia Detector** **Aug 2023 – Oct 2023**

- Built object detection pipeline using YOLOv3 to identify and localize pneumonia infections in chest X-rays.
- Utilized image augmentation to improve performance, and Confusion matrices, F1 score to see model limitations.
- Achieved 53 mAP (mean Average Precision), demonstrated model's ability to capture spatial abnormalities.

## SKILLS & INTERESTS

**Patents (Matter Motor):** Procedure to obtain more than 90% joint efficiency for Cu–Hilumin circular laser-beam welds
**Programs/Tech:** Verilog, Quartus, Assembly, Python, Java, C++, LAMMPS**,** Altium, Fusion 360, RaspberryPi, Jetson
**ML experience:** Regression techniques, CNNs, NLP, YOLO, RCNN**. Libraries:** PyTorch, TensorFlow, Sklearn, WandB
**Awards:** Highschool Valedictorian, Crest Gold Award for exceptional research, AMC 12: 1st in school (AIME qualifier)