ANKUSH K. DHAWAN

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SUMMARY

Driven, creative, and hands-on candidate with a passion for engineering and researching cost-effective technology solutions (various publications and patents) using electromechanical systems. Skilled in engineering design and software (Python, CAD, Linux, MATLAB, C, C++, Java, Verilog, ROS, KiCAD, Altium) with an interest in robotic devices, communications, sensors, and integration.

EDUCATION

Stanford University — **Stanford, CA** — **Sep 2020 – Jun 2024**

Incoming Ph.D. Student in Robotics; M.S. Electrical Engineering 2025; B.S. Electrical Engineering 2024: *GPA 3.92/4.0*

- *Relevant Coursework*: Linear Dynamical Systems; Computer Vision; PCB Design; Signal Processing; Circuits; Optimal Control, etc.
- *Clubs/Organizations*: Robotics Club; Treehacks Organizing Team; Stanford Energy Club; Stanford Bhangra; Club Tennis

Signature School; *GPA 4.5/4.0* — **Evansville, IN** — **Aug 2016 – Sep 2020**

Valedictorian; IB/AP Scholar; Outstanding Senior Award; School Science Award; National Merit Scholar

WORK EXPERIENCE

Humanitarian and Disaster Relief Systems Intern — **MIT Lincoln Laboratory** — **Jun 2024 – Sep 2024**

Built the SPROUT vine robot system for mapping and exploring hazardous and confined spaces during USAR scenarios. Designed compressed electronics control PCB. Created fully portable operating procedure. Submitted paper to SSRR based on field studies.

Battery Electronics Design Engineer Intern — **Tesla** — **Jun 2023 – Sep 2023**

Designed and tested electronics for the high voltage system in Tesla's electric vehicles. Designed bed outlet power delivery board for the Cybertruck (in Altium) and developed a functional circuit tester for the high voltage controller in the Cybertruck and Tesla's next generation vehicles (Robotaxi) to test communications, safety disconnect systems, and battery monitoring systems.

AV Fleet Engineering Intern — **Embark Trucks** — **Jun 2022 – Sep 2022**

Developed hardware/sensor functional tester for testing autonomous vehicle systems (LiDAR, GPS, CAN bus, compute system, etc.) on the bring-up process for the truck sensor suite to improve reliability. Spear-headed truck calibrations project (steering bias, extrinsics, GPS) and fleet grounding optimization in a cross-functional team of engineers to improve safety and consistency.

Research Intern — **Mai Lab, Stanford Chemical Engineering** — **Jun 2021 – Sep 2021**

Developed a MATLAB code package for single molecule image analysis of confined comb polymers. Randomly generated accurate polymer models and analyzed optical microscopy images to understand biolubrication. Co-author for poster submitted to American Physical Society conference in March, 2023 based on this research.

PROJECTS & RESEARCH

DenseTact — **ARMLab, Stanford Mechanical Engineering** — **Sep 2022 – Current**

Research under Prof. Monroe Kennedy in the Assistive Robotics and Manipulation Laboratory to build the DenseTact, an optical tactile sensor for dense shape reconstruction. Working on miniaturization and to improve modularity for the third version of the finger-like sensor. Future work includes creating a robotic skin.

Pupper Quadruped Robotics Projects — **Movement Lab: Human-Centered AI Grant** — **Sep 2021 – Current**

Collaboration with Stanford Medicine: Improved pediatric patient experience and healthcare outcomes using Pupper as a social companion in the hospital. CS 123 Head TA: A Hands-on Introduction to AI-enabled Robots. Students build and program Pupper.

Robust Cobalt Complexes for CO_2 Reduction — **Jun 2018 – Mar 2019**

Synthesized cobalt catalysts, which demonstrate a 100-fold improvement from an activity/cost standpoint over the leading rhenium-based catalysts for CO_2 reduction. Research conducted at Univ. of Southern Indiana with Prof. Jeff Seyler.

An Improved Method for Trace Level Arsenic Quantification — **Jun 2017 – Mar 2018**

Created and patented an arsenic detection method using methyl red bromination to detect arsenic below EPA limits (10ppb), representing a ten-fold improvement over previous studies. Also developed a simple and fast test method for in-field use.

PUBLICATIONS/PATENTS

- **Field Insights for Portable Vine Robots in Urban Search and Rescue,** accepted to SSRR 2024.
- **Dynamic Layer Detection of a Thin Materials using DenseTact Optical Tactile Sensors,** submitted to IROS 2025.
- **DenseTact-Mini: An Optical Tactile Sensor for Grasping Multi-Scale Objects From Flat Surfaces,** Robotic Manipulation Best Paper Finalist at ICRA 2024
- **USPTO Patent No. 11,022,557 B2** Test Kit for Detecting Arsenic issued 06/01/2021.
- **Preparation of a Core-Double Shell Chitosan-Graphene Oxide Composite and Investigation of Pb (II) Adsorption**, published in Heliyon 5 (2019) e01177.
- **American Chemical Society Undergraduate Symposium Poster Presentation, Comparison of Re and Co Complexes in the Electrocatalytic Reduction of CO2**, 04/01/2019.
- **USPTO Patent Application Pub. No. US 2017/0214076 A1** Microbial Fuel Cell Light Assembly filed 06/27/2017.

HONORS

Regeneron STS Top 40 Finalist, US Presidential Scholar, Intel ISEF 2nd Place Awardee, Indiana Governor's STEM Team