

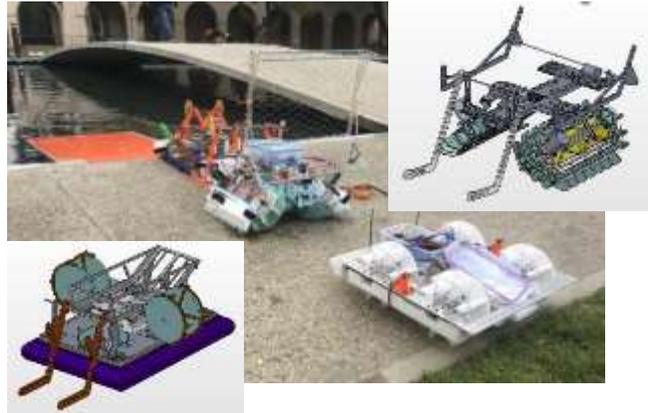
Prinesh Mistry Project Portfolio (2019)

1. ME 72 Capstone Competition

Four teams of 5 people were given \$1400 to build three amphibious robots.

The contest was to collect and transport balls to different zones/goals for points.

Our team (Misteltein) built three robots, each with their own specialized role, performed initial simulations/calculations and presented at a preliminary and critical design review.



The Hovercraft

This was our first robot, designed and built for speed and interference.

The “breadboard” top deck allowed rapidly configuration changes. I co-designed and fabricated the initial prototype.



The Tankboat

Designed for high capacity and reliability, it was the highest scoring robot of the competition.



Incorporating novel fabrication techniques (injection molding, superlight thin metal chassis), we created the design and I performed the The Paddleboat integration and testing.

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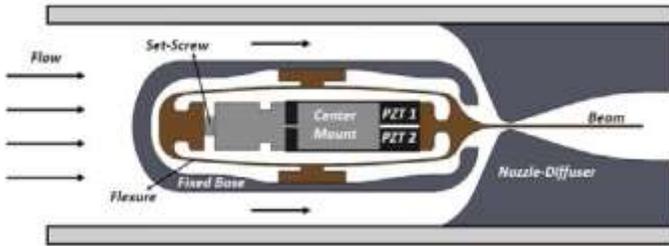
Designed to be as simple to make and troubleshoot as possible, and fabricated in 2 weeks (when we realized there wasn't enough time to make another tank.)



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2. Enceladus Flow-Energy Harvesting

Used a MATLAB model of the flow-energy harvester (FEH, below) with estimates of vent conditions to determine if it would start to oscillate and produce energy.



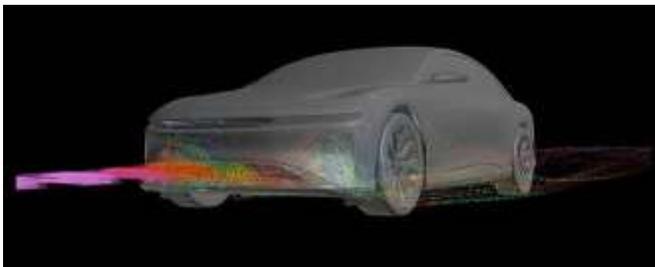
3. Electric Longboard Project

For our Design & Fabrication class we built an electric longboard, simplifying the drive system with a single driven rear wheel. I designed the deck, rear wheel, wheel cover, and electronics box and did the testing.



4. Karma Automotive Thermal Engineering Internship

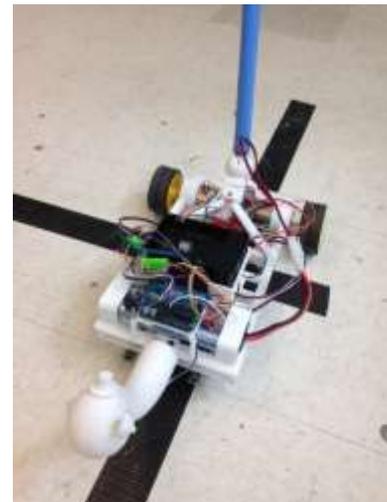
Interning with the Thermal Systems group, I worked on improving under-hood airflow/heat transfer using ANSYS simulations for the new vehicle.



5. Robotics for the Visually Impaired

Interning at the NYU Tandon School of Engineering's Mechatronics Group, we developed a robot that could help the visually impaired navigate around unfamiliar buildings.

Users hold the stick and get sensory feedback as the robot moves towards their destination. The robot used line following for guidance and ultrasonic sensors for obstacle avoidance. I won the NYU Young Scholars Prize for my concept and presentation



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7. Factory Five MK4 Roadster Kit Car

From 2013-2016 I built an AC Cobra road-going replica with my father. It came as a powder-coated frame and 23 boxes of parts. We bought the engine, transmission, and rear axle separately.



I assembled various subsystems: pedal box, fuel system, brake lines, suspension, steering, dashboard, upholstery, insulation, wiring harness, and more.



We made several custom mods including an under-dash console, cup holders, a signal stalk. I was responsible for designing, fabricating, and installing the center console.



The build manual was vague and out of date so I often needed to use intuition or improvisation to solve the task.



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8. Cardboard Art

As a child I loved playing leftover cardboard boxes; using them as stand-ins for armor and vehicles. In middle school I got my parents to buy me a glue gun, and after hours alone in a room I came up with a bulky cardboard gauntlet (center top). Everything was created from scratch with no instruction



In high school I continued to build and innovate, combining my love of design and creating. Soon I began adding custom linkages to my creations. After gaining enough experience with joints I switched gears and created a palm-sized fully articulate cardboard figurine. The v2 leg (bottom middle) has 10 moving parts and a moving kneecap.

