

TARUN SUBRAMANIAN

tarun@u.northwestern.edu | <https://www.linkedin.com/in/tarunsubramanian> | +1 (702) 695 3320

EDUCATION

Northwestern University – The Graduate School
Master of Science in Mechanical Engineering

September 2017- December 2018 (*Expected*)
GPA: 3.85/4

Anna University – SSN College of Engineering
Bachelor of Engineering in Mechanical Engineering

July 2013 – June 2017
CGPA: 3.9/4

SOFTWARE SKILLS

SolidWorks, MATLAB, Mathematica, EAGLE, Atmel Studio, C/C++, Arduino IDE

PROJECTS

Motor Control, Northwestern University, USA

January 2018 –March 2018

- Developed a position controller using PID algorithm for a Motor to follow a desired trajectory which is given by the user. The hardware consists of a PIC32 microcontroller, MAX9918 current sensor and DRV8835 H-Bridge.
- A simple user interface was created using MATLAB which provides the user with 15 options: from reading the encoder values, setting current and position gains to plotting trajectories.

Webcam Design, Northwestern University, USA

January 2018 –March 2018

- Designed and developed a wireless webcam from scratch, from sourcing components to designing the PCB to soldering it. This Webcam features an Atmel SAMS48B microcontroller, AMW136 Zentri Wi-Fi Chip and Omni vision OV2640 camera.
- In addition to designing the webcam, a website was made, and a 3D printed enclosure was fabricated.

Robot Simulator Algorithm, Northwestern University, USA

November 2017 – December 2017

- Created a robot simulator algorithm using Mathematica for a KUKA youBot to test the kinematic task space feedforward plus feedback control law tracking the end-effector trajectory which was defined by a path and time scaling.
- This algorithm was simulated using V-REP robot simulator.

Design and Fabrication of Go-Kart, Go-Kart Design Challenge 2016 (GKDC), India

April 2015 - February 2016

Vehicle Engineer Lead and Team Driver

- Designed the chassis, braking system on SolidWorks and performed structural analysis of chassis using ANSYS to determine optimum factor of safety and assembled the vehicle circuitry.
- Go-kart was placed 16th overall and 3rd in Handling Tests in GKDC

EXPERIENCE

Graduate Student Researcher, NxR Lab, Northwestern University, USA

October 2017 – Present

- Current work is in the field of surface haptics with focus on texture signal synthesis and mapping of textures onto an electrostatic friction modulation device.

Summer Research Intern, Indian Institute of Technology, Kanpur, India

June 2016 – August 2016

Design of De-Spinning Mechanisms for Dual Spin Ballistic Projectiles -DRDO¹

- Analytically derived 6 D.O.F dynamic model to predict altitude, range trajectory of projectile on MATLAB.
- Canard was designed on SolidWorks based on roll-moment requirement for various velocities of the projectile and Roll isolation bearing was selected based on axial and thrust loads

PUBLICATION

'Wood Plastic Composite', National Conference for Mechanical Engineering Research Scholars

31st March, 2017

- Developed WPC from waste pine wood flour compounded with Polypropylene and talc powder and characterized the mechanical properties of the material. Aimed at developing a material feasible for 3D printing.
- Recipient of the SSN student research grant (March 2015), at SSNCE, Chennai

RELATED COURSES

Mechatronics, Robotic Manipulation, Theory of Machines – Dynamics, Engineering System Design

¹ Defense Research Development Organization, Govt. of India