

# Japnit Singh Sethi, E.I.T.

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## EDUCATION

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### Master of Engineering in Computer Engineering

May 2021

Focus Area: Software, Controls, and Machine Intelligence

### Bachelor of Science in Mechanical Engineering

May 2019

Virginia Polytechnic Institute and State University

Blacksburg, VA

## TECHNICAL SKILLS

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- **Programming Languages:** C/C++, MATLAB, Python
- **Softwares:** SolidWorks, Siemens NX, ANSYS, KiCad
- **Robotics:** ROS, Sensor Integration
- **Mechanical:** FEA, Prototyping, Soldering, 3D Printing, Basic Machine Shop Skills

## WORK EXPERIENCE

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### The Advanced Control Systems Lab

Blacksburg, VA

Graduate Researcher

August 2020 - May 2021

- Implemented a passivity based adaptive controller for 5-DOF robotic arm in **MATLAB**
- Conducted simulation tests to deduce a 59.2% computationally faster way of capturing parametric uncertainties
- Derived equations of motion to capture parametric uncertainties in 2-DOF, 3-DOF, and 5-DOF robotic arm

### TMEIC

Roanoke, VA

Systems Engineering Intern

May 2020 - Aug 2020

- Created a complete functional document on RTG's to reduce onboarding time for 44% of TMEIC employees
- Provided an algorithmic structure to the **C++** source code of EGD networking protocol for **Mitsubishi PLC**

### Autonomous Systems and Controls Lab

Blacksburg, VA

Graduate Research Assistant

July 2019 - Dec 2019

- Optimized AUV state-space model for improved prediction of pitch and yaw axis data using MATLAB
- Assembled, calibrated and operated AUV for field trials with a 60% success rate

### Assistive Robotics Lab

Blacksburg, VA

Undergraduate Researcher

May 2018 - August 2018

- Created 3D CAD models of 15+ Exo-suit components using **Siemens NX** for ease of manufacturing
- Machined 8 soft goods and upper frame prototypes, resulting in favorable response from 3 product testers

### VVF LLC

Kansas City, KS

Engineering Intern

May 2016 - August 2016

- Improved week over week soap packaging efficiency by 18.5% by troubleshooting automated packaging line
- Created OSHA compliant directional flow maps for 15 pumps in the soap production facility

## PROJECTS

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### AgBOT (Agriculture Autonomous Robot)

August 2018 - May 2019

- Won **first place** in AgBot Mining for Microbes and Micro-fauna competition against **20 international teams**
- Led storage and filtration sub-team from ideation to completion using custom verification and validation plans
- Designed 15+ CAD models with explosion drawings and assembly animations in **Siemens NX**

### Semi-Autonomous Underground Vehicle

January 2019 - May 2019

- Delivered food items using semi-AUV by implementing **ROS** software packages with 9% time to spare
- Debugged and implemented ROS packages for 2D, 3D SLAM, and motor control in **C++**
- Built **robotic system level design** to explain hardware & software architecture of the semi-AUV

## LEADERSHIP, AWARDS AND CERTIFICATIONS

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- International Undergraduate Speaker for Class of 2019 (**out of 1152 students**)
- Advanced C++ (Udemy) # UC-4709f761
- Learning PLC Ladder Logic (LinkedIn Learning)
- Certified SolidWorks Associate (Dassault Systemes)
- Engineer in Training **Mechanical** # 0420072322

April 2020 - Present

May 2020 - Present

July 2019 - Present

July 2019 - Present