ANERI D. MUNI

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EDUCATION

GEORGIA INSTITUTE OF TECHNOLOGY | Atlanta, Georgia *May 2018*
Major: Bachelor of Science in Electrical Engineering *GPA: 3.53*
Minor: Robotics
- Dean's List (all semesters)
- **Study Abroad Experience**: Georgia Tech Lorraine (France), Summer 2014.

EXPERIENCE

AUTONOMOUS SYSTEMS LAB | ETH Zurich
Visiting Student Researcher *June 2016 – August 2016*
- Programmed ABB's YuMi robot to rebuild a block stack after scanning it.
- Developed pick-place routine using MoveIt! and object-detection routine using PCL and ASUS PrimeSense sensor.

GEORGIA TECH RESEARCH INSTITUTE | Atlanta, Georgia
Robotics and Image Processing *August 2015 – Dec. 2015*
- Programmed an agricultural robot to maneuver autonomously in poultry houses.
- Developed obstacle avoidance algorithms using data from Xbox Kinect.
- Implemented path finding algorithm using pre-defined map of chicken houses.
- Designed user friendly Windows GUIs in C# to run a pedestrian tracking software. *May 2016 – August 2016*
- Processed data and accessed results for Georgia Department of Transport using MySQL.

SCHOOL OF MATHEMATICS | Atlanta, Georgia
Teaching Assistant for Differential Equations *Jan. 2016 – May 2016*
- Tutored a class of 30 students by holding recitations twice a week.
- Held office hours, solved difficulties and graded exams and homework.

CENTER FOR ACADEMIC SUCCESS | Atlanta, Georgia
Peer Tutor for Differential Equation *August 2014 – May 2015*
- Tutored for a class of 50 students by holding study sessions twice a week.
- Improved teaching skills, time management, delegation and public speaking.

PROJECTS

DYNAMIC SCENE RECONSTRUCTION | Atlanta, Georgia *Jan. 2017 – Present*
Georgia Tech Research Institute
- Conducted literature review for 3D reconstruction and understood algorithms like *KinectFusion* and *DynamicFusion.*
- Goal: To implement algorithms for tracking and reconstruction of dynamic, non-rigid scenes in real time.

UNIVERSAL-HYBRID GRIPPER | Atlanta, Georgia *October 2017*
Hack-A-Thing Competition, Georgia Tech
- Designed a gripper with 3 fingers with compliant material on the ends and in the palm of the hand.
- Worked on the electronics including servo motors, pressure sensors and air pump controlled with Mbed.

QUADRUPED ROBOT | Atlanta, Georgia *August 2016 –Dec. 2016*
IVALabs, Georgia Tech
- Programmed a quadruped that emulates the locomotion gaits of quadrupeds found in nature.
- Designed 3D model of quadruped with an actuated spine using Autodesk Inventor.

GT-MAB - AUTONOMOUS BLIMPS | Atlanta, Georgia *May 2015 – July 2015*
Georgia Tech Systems Research Lab
- Performed system identification and developed PID controllers to control 3D motion of a robotic helium blimp.
- Acquired light intensity data to map air current flow patterns.
- **Nano Blimp –** developed a hardware/software for communication for smaller version of blimp. *Jan. 2016 – April 2016*

AWARDS

- President's Undergraduate Research Award *Spring 2018, Spring 2016, Summer 2015*
- ThinkSwiss Research Scholarship *Summer 2017*
- James G. and Mary G. Wohlford Co-op Scholarship *Spring 2017*
- IEEE Control System Society Video Contest, 3rd position *Summer 2015*

PUBLICATIONS

- Q. Tao, M. King-Smith, **A.D. Muni**, V. Mishra, S. Cho, J.P. Varnell, F. Zhang, *Control Theory – Autonomous Blimp*. 2015 [Online]. Available: https://youtu.be/5M-V4GOFNDA.

- S. Cho, V. Mishra, Q. Tao, P. Varnell, M. King-Smith, **A. Muni**, W. Smallwood, F. Zhang. *Autopilot Design for a Class of Miniature Autonomous Blimps*. 2017 IEEE Conference on Control Technology and Applications. Pages: 841 - 846.

- C. T Usher, W. D Daley, B. P Joffe and **A. Muni**. *Robotics for Poultry House Management*. 2017 ASABE Annual International Meeting. 1701103.(doi:10.13031/aim.201701103).

SKILLS/INTERESTS

Programming: Java, C++, MATLAB, Python, C, C#, RobotC
Platforms: Linux (Ubuntu, Debian), ROS
Hardware: ARM Mbed microcontroller, Arduino, Raspberry Pi, LaunchPad, FPGAs, oscilloscope, logic analyzer
Software: GitHub, MathCAD, Multisim, LTSpice, Autodesk Inventor, Quartus II, NI LabVIEW, OpenCV, PCL, MoveIt!
Communication: Design proposals, technical reports, instruction manuals, presentations (large and small audiences)
Languages: English (fluent), Hindi (native), Gujarati (fluent), French (beginner)
Volunteer: Volunteered as a tutor for underprivileged students from K-5th grade in Atlanta's communities.

RELEVANT COURSES

Systems and Control: Introduction to Automation and Robotics, Feedback Control, Control System Design, Signals and Systems, Embedded System Design

Computer Science: Introduction to AI, Data structures and Algorithms, Introduction to Object-Oriented Programming, Engineering Software Design

Core ECE: Computer Communication, Digital Signal Processing, Circuit Analyses, Microelectronics, Electromagnetism, Electrical Energy Systems.

LEADERSHIP

UNDERGRADUATE RESEARCH AMBASSADORS | Atlanta, Georgia
Research Ambassador *August 2017 – Present*
- Mentored students to get more involved in undergraduate research.
- Developed new workshops and informational sessions assisting students interested in undergraduate research.
- Presented in GT1000 and other classes about undergraduate research.

WOMEN IN ECE (WECE) | Atlanta, Georgia
Newsletter Chair | Publicity Chair *Jan. 2015 - Present*
- Publicized club events through electronic (Facebook, website) modes.
- Designed flyers for various events organized by the club.

ECE AMBASSADORS | Atlanta, Georgia
Ambassador *August 2014 – May 2015*
- Gave tours of ECE facility to prospective students and their parents.
- Answered questions regarding Electrical Engineering and Tech in general.