

TALHA AGCAYAZI

www.Talha-Robotics.tk

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EDUCATION

North Carolina State University

PhD Electrical Engineering

Advisor: Dr. Alper Bozkurt

Research Assistant in iBionicS Lab

Relevant Coursework:

Medical Instrumentation

Microwave and RF Design

Neural Interface Engineering

Systems Control Engineering

Expected May 2020

George Mason University

B.S. Electrical Engineering & Minor in Computer Science

Overall GPA: 3.85, magna cum laude

Senior Design Project Manager: Aiding Search & Rescue Missions with Autonomous UAVs

Relevant Coursework:

Autonomous Robotics

Computer Vision

Data Structures

Machine Learning

Control Theory

Programming 1-3 (Python, Java and C)

2011 - 2015

Robinson Secondary School

Overall GPA: 3.83

2007 - 2011

RESEARCH EXPERIENCE

Integrated Bionic MicroSystems Laboratory, NC State University

Research Assistant

August 2015 - Present

Raleigh NC

- Developing smart textile wearable sensors with a diverse group to help in Neuro Rehabilitation Robotics.
- Experimenting and Designing Bluetooth Low Energy circuits using CAD tools for health applications.

Laboratory for Autonomous Systems Research, Naval Research Lab

Naval Research Enterprise Intern

May 2015 - July 2015

Washington DC

- Implemented and tested Visual Navigation algorithms to enable autonomous flight of quad-copters indoors.
- Implemented a motion control algorithm on a mobile robot and extended the work by adding visual navigation to reach a target.
- Presented findings and results to summer research group.

Robotics Institute, Carnegie Mellon University

NSF REU Summer Scholar -www.ri.cmu.edu/summerscholars

June 2014 - August 2014

Pittsburgh, PA

- Designed and programmed the Command and Control Interface for the BIRD MURI project.
- Implemented fail-safes, diagnostics and a new flight mode for altitude control to a Quad-Copter.
- Collaborated in a team to implement the first use of the receding horizon controller on a UAV which used Machine Learning to predict fatal uncertainties in Computer Vision Results.
- Advisors: Dr. Drew Bagnell (Machine Learning) and Dr. Martial Hebert (Computer Vision).
- Graduate Advisor: Debadepta Dey.

Lofaro Labs, George Mason University
Undergraduate Research Scholar

January 2014 - May 2015
Fairfax, VA

- Designed and implemented Electrical and Computer Engineering Department's first Quad-Copter that is capable of performing perception, motion planning and control algorithms.
- Initiated a Senior Design team to make a Micro Air Vehicle to augment Search and Rescue operations with funding from the Undergraduate Research Scholars Program, and internal grant at George Mason.
- Presented results at numerous places including the NCUR and IEEE ICUAS 2016 and won Awards.
- Advisors: Dr. Gerald Cook and Dr. Dan Lofaro.

Autonomous Robotics Lab, George Mason University
Undergraduate Research Assistant

May 2013 - July 2013
Fairfax, VA

- Contributed to an NSF funded Research Project called FlockBots.
- Programmed an Arduino microcontroller to control a differential drive robot.
- Gained a reputation for being a team player by applying Electrical Engineering skills on a Computer Science Research Project.
- Advisor: Dr. Sean Luke

Machine Learning & Inference Lab, George Mason University
Undergraduate Research Assistant

December 2012 - April 2013
Fairfax, VA

- Researched trends like health informatics with data mining.
- Worked on a visualization tool using python libraries to aid the process of diagnosing errors.

TEACHING EXPERIENCE

Department of Computer Science, George Mason University
Undergraduate Teaching Assistant

September 2012 - May 2014
Fairfax, VA

- Managed a Piazza Q&A forum to answer questions (one semester)
- Held office hours and attended labs to help students learning new programming languages.
- Classes TAed: Introduction to Programming (Python) and Programming for Engineers (C)

Early Identification Program, George Mason University
Academic Mentor

February 2012 - December 2012
Fairfax, VA

- Mentored Middle & High School students with the potential of becoming the first in their families to go to college.
- Performed presentations and activities to students about the benefits of going to college.

LEADERSHIP ACTIVITIES & HONORS

- National Science Foundation Graduate Research Fellowship Program Honorable Mention (2016)
- Vice President of the ECE Graduate Student Association, NCSU (2015 - 2016)
- 2015 Outstanding Academic Achievement, ECE Department GMU (Spring 2015)
- 2015 Office of Student Scholarship and Research, Student Excellence Award, GMU (Spring 2015)
- Outstanding Project and Keynote Speaker awards at Undergraduate Research Celebration (Spring 2015)
- Project Manager for Undergraduate Senior Design Project (2014 - 2015)
- Vice President of the Tau Beta Zeta (Pi) Engineering Honor Society (Spring 2015)
- Undergraduate Research Scholars Program (URSP) Grant, Spring 2014 and Fall 2014
- Dean's Scholarship Award (Spring 2014)
- Vice President of the IEEE Student Chapter at GMU, August 2013 - May 2014
- Secretary of the Applied Robotics Club, September 2013 - May 2014
- President of the Turkish Student Association, January 2013 - May 2013
- Golden Key International Honour Society, Fall 2012 - Present
- Dean's list (Every Semester 2011 - 2015)

TECHNICAL STRENGTHS

Computer Languages	Java, Python, C, Lua, Assembly, VHDL and MATLAB
Operating Systems	Linux (Ubuntu), Windows 7&8 and Mac
Embedded Systems	CC2541 (BLE), msp430, RFduino
Tools	IAR, ROS, Xilinx ISE, Eclipse, Office

DISSEMINATION OF RESEARCH

Peer-Reviewed Publications:

- **Agcayazi M., Sofge D. "A Novel Reaction Motion Controller for Slip Detection and Compensation in Mobile Robots,"** In-Progress.
- **Agcayazi M., McKnight M., Kausche H., Ghosh T., Bozkurt A. "A Finger Touch Force Detection Method for Textile Based Capacitive Tactile Sensor Arrays,"** *IEEE International SENSORS Conference*; 2016 October 30 - November 2; Orlando, FL. Paper Under Review
- **Kapoor A., McKnight M., Chatterjee K., Agcayazi M., Kausche H., Ghosh T., Bozkurt A. "Soft, Flexible 3D Printed Fibers for Capacitive Tactile Sensing,"** *IEEE International SENSORS Conference*; 2016 October 30 - November 2; Orlando, FL. Paper Under Review
- **McKnight M., Agcayazi M., Kausche H., Ghosh T., Bozkurt A. "Sensing Textile Seam-line for Wearable Multimodal Physiological Monitoring,"** *IEEE International IEEE International Conference of Engineering in Medicine and Biology Society (EMBC)*; 2016 August 16-20; Orlando, FL.
- **Brugarolas R., Agcayazi M., Yuschak S., Roberts D., Sherman B., Bozkurt A. "Towards a Wearable System for Continuous Monitoring of Sniffing and Panting in Dogs,"** *IEEE International Body Sensor Networks Conference (BSN)*; 2016 June 14-17; San Francisco, CA.
- **Agcayazi M., Cawi E., Jurgenson A., Ghassemi P., Cook G. "ResQuad: Toward a Semi-Autonomous Wilderness Search and Rescue Unmanned Aerial System,"** *IEEE International Conference of Unmanned Aircraft Systems (ICUAS)*; 2016 June 7-10; Arlington, VA.
- **Dey D., Shankar K., Zeng S., Mehta R., Agcayazi M., Eriksen C., Daftry S., Martial Hebert, Drew Bagnell "Vision and Learning for Deliberative Monocular Cluttered Flight,"** *Book Chapter: Springer Tracts in Advanced Robotics*; 2016 March 16; Volume 113; pp 391 - 409. (Published also in the 10th International Field and Service Robotics Conference 2015, Toronto, Canada)

Presentations:

- **Agcayazi M. "Augmentation of Search and Rescue Operations with Autonomous Aerial Vehicles,"** Invited Oral and Poster presenter at: *Celebration of Student Scholarship GMU*; 2015 May 4; Fairfax, VA.
- **Agcayazi M., Cawi E., Jurgenson A., Ghassemi P. "Augmentation of Search and Rescue Operations with Autonomous Aerial Vehicles,"** Keynote and Poster Presented at: *2nd Undergraduate Research Celebration, Volgenau School of Engineering GMU*; 2015 April 20; Fairfax, VA.
- **Agcayazi M., Cawi E., Jurgenson A. and Ghassemi P. "Augmentation of Search and Rescue Operations with Autonomous Aerial Vehicles,"** National Conference of Undergraduate Research (NCUR); 2015 April 16-18; Cheney, WA.
- **Zeng S, Agcayazi M. and Dr. Drew Bagnell. "Trajectory Following in GPS Denied Environments for UAVs using Receding Horizon Control,"** Poster Presented at: *Robotics Institute Summer Scholars Poster Session*; 2014 August 7; Pittsburgh, PA.
- **Agcayazi M. and Dr. Gerald Cook. "Design of a Micro Air Vehicle for Autonomous Aerial Searching,"** Presented at *GMU*; 2014 May 12; Fairfax, VA.
- **Agcayazi M. and Dr. Gerald Cook. "Design and Implementation of a Quadrotor Capable of Performing Autonomous Search and Rescue Missions,"** Poster presented at: *First annual Volgenau School of Engineering Celebration of Undergraduate Research*; 2014 April 24; Fairfax, VA.

LANGUAGES

Fluent in English and Turkish. Conversational ability in Spanish.