Robert Tacescu

www.rgtac.com | (559) 917-6764 | robbie9513@gmail.com

Qualifications Summary:

Graduate computer science student with a minor in Astronomy, significant programming experience, and a passion for technology, pursuing a master's degree in computer science

Key Skills:

- **Software Development (Linux and Windows):** Algorithms, Data Structures, Dependency Injection, Machine Learning, Full Stack Web Development, ROS (Robot Operating System), Gazebo (Physics Simulation, Flight Simulation), Git
- **Languages:** C++ (5 years), Python (5 years), Java (7 years), C (2 years), JavaScript (6 years), React (2 years), SQL (2 years), C# (2 years)
- **Robotics:** Programming, Simulation, Design, Build, Wiring

Education:

- **University of Massachusetts at Amherst**
  B.S. in Computer Science and minor in Astronomy graduated Spring 2022 **GPA: 3.7**
  M.S. in Computer Science graduating in Spring 2024
- **2018**: Full-Stack Web Development Specialization (Bootstrap 4, React, React Native, NodeJS, MongoDB) on Coursera.
- **2017**: Machine Learning Course by Stanford University on Coursera
- **SAT:** 1580/1600 **ACT**: 35/36

Work Experience:

- **SpaceX Starlink** - Software Engineer Intern, June 2022 - Aug 2022 (https://www.spacex.com/)
  - Added features and capabilities to the existing RFIC testing suite for R&D of Starlink communication chips (C#, C++)
  - Upgraded and refactored RFIC testing suite to support cross-platform operation and rebuilt user interface to be operating system agnostic
- **Mechatronics and Robotics Research Lab at UMass** - Software Research Assistant November 2021 - Present
  - Developed software for the Hello Robot Stretch robot (Research Edition) to assist doctors and nurses in object manipulation and item retrieval in the fast-changing medical environment.
  - Utilized a robust simulation and testing platform for autonomous navigation and object manipulation using ROS, C++, and Python.
- **Torc Robotics** - Software Engineer Intern, June 2021 - Aug 2021 (https://torc.ai/)
  - Developed an automated calibration suite for use in autonomous Daimler trucks (C++, Python, and ROS in Ubuntu). Reduced calibration time from 3 days to 45 min.
  - Developed and deployed an automated calibration validation pipeline to test for visual inaccuracies in 3D data, cutting validation time by 50% and reducing errors in manual checking.
- **GlobalFoundries** - Software Engineer Co-op/Intern, Aug 2020 - Dec 2020 (https://gf.com/)
  - Developed and maintained advanced testing and hardware interface software used in the semiconductor, 5G mmWave, and RF industries (C++ and Python in various Linux environments).
  - Created an internal library to assist team members in developing testing software for new semiconductor products. Decreased development time on new projects by 20-40%.

Projects:

- **Safecopter Project: www.rgtac.com/safecopter (2016-2018)**
  Safecopter is an internationally recognized collision avoidance system based on an array of time-of-flight 3D cameras. The raw point cloud data is converted into a probabilistic spatial format (octrees), and the optimal path is plotted using a combination of ROS, C++, and Python. This was an independent project and included the design and building of a custom quadcopter capable of collision avoidance in both real-world and physics-simulated environments.
- **Project Odin: www.rgtac.com/hackumass2019 (2019)**
  Odin is a hackathon project to assist those who are deaf or hearing impaired by using a combination of sensors and sound placement algorithms to project the information onto AR glasses. It detects and classifies the sound, notifying the user of the type and direction of the sound through a phone application.
- **Bear Image Classifier: www.rgtac.com/ai (2019)**
  Uses MobileNetV2, transfer learning, and TensorFlow 2.0, to classify and distinguish different types of bears using internet images automatically collected and augmented.
- **FFmpeg Motion Detection (2020)**
  Develop motion detection software for security camera footage based on the FFmpeg scene change algorithm. (Python, FFmpeg, PySimpleGUI).
- **FIRST FRC Robotics www.rgtac.com/frc (2014-2018)**
  Programming Team Leader (Java and Python), OpenCV vision target tracking software (Java), Time tracking software development (Java and MySQL)

Awards / Accomplishments: www.rgtac.com/awards

- **2019:**
  - Winner of best AR/VR hack, 3rd place overall at HackUMass 2019 for Project Odin
- **2018:**
  - First place award from NASA at Intel International Science and Engineering Fair (ISEF)
  - Second place award from the American Institute of Aeronautics and Astronautics (AIAA) at ISEF
  - First Place (all categories) at the 2018 Central California Science, Mathematics & Engineering Fair
  - First Place in the category of Computer Science and Mathematics, Excellence in Science Award, and four other special awards at the Central California Science, Mathematics & Engineering Fair
- **2017:**
  - Third Place in the category of Robotics and Intelligent Machines at the Intel International Science and Engineering Fair (ISEF)
  - First place award from the United States Air Force at ISEF
  - Second place award from NASA at ISEF
  - First Place in the category of Computer Science and Mathematics, and three other special awards at the Central California Science, Mathematics & Engineering Fair
  - FIRST FRC Robotics Los Angeles Winner and Participation in 2017 FIRST FRC World Championship
- **2016:**
  - Third Place in the category of Robotics and Intelligent Machines at the Intel International Science and Engineering Fair (ISEF)
  - FIRST FRC Robotics Orange County Winner and Participation in 2016 FIRST FRC World Championship

Hobbies: chess, tennis, skiing, bowling

References: available upon request