Christopher Suarez

chriswsuarez@gmail.com | 954-336-9953 | linkedin | github

SUMMARY

Experienced roboticist seeking full-time engineer role for research in robotics / automation applications

EDUCATION

M.S. Mechanical Engineering, University of Texas at Austin 2019
Cockrell School of Engineering Fellowship | 3.85 GPA

B.S. Mechanical Engineering, University of Florida 2014
Cum Laude | Full Tuition Bright Futures Scholarship | 3.71 GPA

EMPLOYMENT

UT Austin Nuclear & Applied Robotics Group Austin, TX
Research Engineering Scientist Associate IV Sept. 2019 – Present

Summary

- Oversaw and performed over 100 technical demos directly leading to >$4M in project funding to UT
- Expertise in setting up, debugging, and operating robotics systems with ROS
- Managed small development teams for multiple research integration projects
- Mentored new engineer and student hires across varying research efforts

Army Futures Command UTDD Project SPEED

- Lead demo engineer overseeing a large-scale on-site technical demonstration with a team of 12
- Stood up a new applied research lab focusing on larger vehicle outdoor autonomy
- Integrated Robot Technology Kernel (RTK) 22 onto a previously incompatible Hunter WOLF platform
- Created a simulation test environment in Unreal Engine

Augmented Robot Environment (AugRE) Project

- Developed and dockerized software stack to co-localize robots with Hololens2 AR Headsets
- Managed dev team creating software for AR in Unreal Engine and robotics in ROS/C++
- Setup and managed small network to handle multiple autonomous and human agent data traffic
- Performed dozens of live hands-on demonstrations to VIPs, Gov Officials, Army Generals, CEOs

AI2C ATR-MCAS Project

- Stood up an Army research platform for autonomous navigation using GPS, IMU, LIDAR, Segway base
- Incorporated capability to visualize our autonomous software stack with ATAK (Android Tactical Awareness Kit) via Cursor-On-Target (CoT) XML messaging
- Extended ATAK visualization capability to our AR AugRE system allowing human agents to appear on ATAK and interface with autonomous agents without co-localizing directly with AR anchors
- Performed yearly deliverable hands-on live demonstrations on-site for Army VIPs

Army Futures Command UTDD Integrated Prototype Project

- Contributed via merge requests to Army Research Labs (ARL) autonomous software stack (Phoenix) including new features, sensor integrations, and critical fixes
- Integrated ARL Phoenix navigation stack with custom Army research platform hardware
- Collaborated with other research labs to integrate burgeoning research into ARL Phoenix stack
- Conducted multi-week study to quantify long-term autonomy viability of integrated research efforts from various robotics labs at UT
- Created custom robot and environment assets for Unity environment for simulation development
- Developed object persistent localization software fusing camera, LIDAR, and mobile robot data

EMPLOYMENT (Continued)

UT Austin Nuclear & Applied Robotics Group — Austin, TX
Graduate Research Assistant — Aug. 2016 – May. 2019

- Developed 3D obstacle detection software for an off-road dual arm mobile manipulator via ROS / C++
- Integrated obstacle detection software onto a Clearpath Husky Dual-Arm Mobile Manipulator
- Researched advanced methods for obstacle negotiation and avoidance for mobile manipulators
- Designed and constructed a 9'x12'x36' above ground tunnel as a mockup harsh test environment
- Supported research with various robots including robotic arms and mobile platforms
- Incorporated various tools into robotic platforms including: Lidars, IMUs, Robotic Grippers, Depth Cameras, Motors…etc.
- Performed final semi-autonomous demonstration of tunnel inspection inside a mock environment

Lockheed Martin Missiles & Fire Control — Orlando, FL
Systems Engineer — June 2014 – July 2016

- Created system level engineering requirements and test procedures
- Collaborated with customers, engineers, managers, and technicians to ensure system functionality
- Conducted program critical tests both in-plant and on-site
- Travelled to sites domestically and internationally to conduct upgraded and new functionality tests
- Presented Test Readiness Reviews to off-program engineers for milestones for numerous programs
- Briefed customers, pilots, maintenance crews, and other users on system improvements
- Designed GUIs to operate and test complex machinery and contributed to the end product UI design
- LM Special Recognition Award June 2015

PUBLICATIONS & PRESENTATIONS

IROS 2023 XR-ROB Workshop — Oct. 2023
Abstract/Presentation - *Augmented Reality User Interface for Command, Control, and Supervision of Large Multi-Agent Teams*

IEEE Internation Conference on Robot & Human Interactive Communication (RO-MAN) 2022 — Sept. 2022
Paper - *AugRE: Augmented Robot Environment to Facilitate Human-Robot Teaming and Communication*

Waste Management Symposia 2018 — Mar. 2018
Poster – *Design of a Predictive Robotic Assistant for Ordered Task Assembly in a Partially Automated Glovebox*

American Nuclear Society Winter Meeting 2018 — Nov. 2018
Abstract/Presentation – *Development of a Modular Sensor Tree for Hazardous Environments*

Waste Management Symposia 2019 — Mar. 2019
Paper – *Savannah River Site H-Canyon Tunnel Inspection LiDAR Mapping Solution*
Paper – *Savannah River Site H-Canyon Collaborative Advanced Technology Demonstration (ATD) Program Review*

SKILLS

- Programming Languages: Python, C++
- Dev Tools: Git, Docker, Bash, Jira
- Simulation: Unreal Engine, Gazebo, Unity
- Software: ROS, Solidworks, Visual Studio, MatLAB, LabVIEW, QT, Linux, Windows, MacOS
- IT: Computer networking, embedded machines, edge computing
- Hardware: Additive manufacturing, lathes, mills, CNC…
- Systems: Requirements, validation & testing, technical reporting, multi-disciplinary collaboration