

Rolando Fernandez

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DEVELOPMENT COMPETENCIES

- ROBOTICS & ARTIFICIAL INTELLIGENCE DEVELOPMENT
 - SOFTWARE DESIGN, DEVELOPMENT, CODING & TESTING
 - PRODUCT DEVELOPMENT TESTING & DEPLOYMENT
 - QUALITY ASSURANCE & QUALITY CONTROL
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TECHNICAL COMPETENCIES

- Programming:** Java, C, C++, Python, Assembly, FORTRAN, HTML, CSS, MySQL, JavaScript, Unit test, Git, Eclipse, PyCharm, Visual Studio, Docker, Travis CI
- Operating Systems:** Windows, Linux & OSX
- Robotics & AI:** Robot Operating System (ROS), TensorFlow, Caffe, scikit-learn, Deep Learning, Computer Vision, Mapping, Human-Robot Interaction, Navigation, Sensors (LiDAR and RGBD Cameras), Robot Platform Design and Construction
- Robot Platforms:** Building-Wide Intelligence (BWI) Project Robot Platform & Toyota HSR
- Languages:** English (fluent), Spanish (proficient), Japanese (beginner)
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SUMMARY OF QUALIFICATIONS

- Polished professional and academic with over 7 years of demonstrated multi-disciplinary excellence in information technologies design, development and deployment, robotic technology development, software development and design, and integrated project coordination. 2 projects delivered to the government and 1 project resulted in report for subsequent funding.
 - Excellent communication, organization and problem-solving skills and the leadership and discipline to develop and motivate both colleagues and clients. Strong sense of priorities, a keen eye for detail, and a valued reputation for integrity. Strong analytical skills experienced in the implementation of value engineering methodologies. Excellent abilities in adapting to changing technologies.
 - Disciplined and flexible professional with a hands-on approach successful in training end users in multiple technologies. Strong problem-solving skills experienced in services and product integration and technologies conflict resolution. Demonstrated knowledge of current technologies, product training and end user support.
 - Secret, DOD Security Clearance, Inactive, Top Secret expired in 2015, Last investigation was performed in October 2010.
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EXPERIENCE

- 2018 **R&D Graduate Summer Intern, Sandia National Laboratories, Albuquerque, NM**
5448 Sensor Exploitation Applications
- xView Challenge, explored deep learning methods (Dynamic Routing with Capsules and Matrix Capsules with EM Routing) for classifying objects in overhead satellite imagery.
 - Autonomy for Hypersonics, explored the application of generative adversarial networks (Wasserstein GAN, Capsule GAN, Conditional GAN) to satellite aperture radar (SAR) imagery to create real seeming synthetic data.
 - Submitted research presentation to internal Sandia Machine Learning and Deep Learning Conference 2018, Capsule Networks: Capturing Presence and *Orientation* of Representations.
 - Created a Capsule Network Library using Python 3 and TensorFlow, to support further research applications.
- 2017 - 2018 **Teaching Assistant, CS395T Robot Learning (Fall 2017) and CS349 Contemporary Issues in Computer Science (Spring 2018); University of Texas at Austin**
- 2017 **Graduate Research Summer Intern, NASA Jet Propulsion Laboratory – CalTech, Pasadena, CA**
Division 39 – Machine Learning & Instrument Autonomy Group (398J)
- SmartSpec Project, tasked to develop a system where intelligent spectral artifact recognition using techniques like Dynamic Time Warping, PCA, and ICA to inform weighted averaging to pull out faint signals in galactic hyperspectral imagery, first stage funding project in support of the SOFIA/upGREAT mission/instrument.
 - Researched and investigated (6) image and video data labeling programs. Provided a report detailing the use, strengths, and weaknesses of each program in support of future project missions.
- 2016 **Research Scholar, McNair Summer Research Institute – BWI Lab, University of Texas, Austin, TX**
- Constructed the BWIBot Version 3 Platform, which included the overall frame and custom computer.
 - Conducted research on autonomous navigation with elevators for the BWIBot platform, which included mapping Environments, robot-human communication, and updating logical navigation actions to allow for interactions with the elevator space.
 - Research report on a Multimodal Communication System Using Animated Lights for Mobile Service Robots.

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- 2015 **Research Scholar, FRI Summer Research Scholarship – BWI Lab, University of Texas, Austin, TX**
- Assisted in the upgrading of the BWIBot robot platform hardware from Version 1 to 2.
 - Learned to how to use Answer Set Programming (ASP) language to create actions for the BWIBot platform.
 - Created new task demos for receiving and delivering items for the BWIBot robot platform using C++ and Answer Set Programming (ASP)
- 2014 – 2016 **Student Technician, Space & Geophysics Laboratory, Applied Research Laboratories, UT Austin, TX**
- 3D Real-Time Ionosphere Data Simulator for Space Weather applications, passed acceptance testing and delivered twice to the government.
 - Web-Based interactive tool for Ionosphere Big Data Repository for an operational system, passed acceptance testing and delivered to the government.
 - Maintained and enhanced capabilities of core project code by developing new iteration features, bug fixes, and unit testing.
 - Maintained and enhanced user accessible web service, fixed bugs and adding improved and additional features.
- 2006 – 2014 **UNITED STATES MARINE CORPS, Various Locations**
*Over seven years of progressive service as a Marine with highlights including leadership, management, telecommunications, encrypted messaging service, and security support to State Department embassies and personnel. **Service and Highlights include:***
- Security Detachment** **2010 – 2014**
- Member of protective services detail providing comprehensive security for American embassies in Lithuania, Serbia and Israel.
- Technical Controller Chief, Okinawa, Japan** **2009 – 2010**
- Provided comprehensive telecommunications support, tactical voice switch, messaging, video teleconferencing and IT network and desktop support for 5,000 End Users in Secret environment.
 - Deployed to Philippines and installed, operated and maintained six trunks, 27 circuits, and complex multiplexing architecture, improving AT/FP posture.
 - Provided comprehensive field services for data, telephone, cable and fiber optic cabling, ground testing and ensured circuit acceptability speeds for video products, and switching equipment ensuring availability of DNS services to over 8,000 users.
- Technical Controller, Camp Ramadi** **2008 – 2009**
- Installed, monitored and maintained all communication links supporting Camp Ramadi including satellite uplinks, and downlinks, all telecomm lines, fiber optic, and IT communications including NIPRnet, and SIPRnet, and cryptographic messaging pathways.
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PUBLICATIONS

- Passive Demonstrations of Light-Based Robot Signals for Improved Human Interpretability, ROMAN 2018
 - Light-Based Nonverbal Signaling with Passive Demonstrations for Mobile Service Robots, Masters Thesis
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EDUCATION

- 2014 – 2018 **THE UNIVERSITY OF TEXAS AT AUSTIN, Austin, TX**
Integrated Bachelor of Science and Master of Science, Computer Science [Thesis Option] [3.7 and 3.5 GPA]
Academic achievements:
- McNair Scholar
 - Alumni, Robotics Graduate Portfolio Certification Program
 - Member, Learning Agents Research Group – Building-Wide Intelligence Project
 - Member, Austin Villa@Home Team - RoboCup@Home SPL, 3rd Place 2017 and 5th Place 2018.
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SPECIALIZED TRAINING 2008 – 2011 **Technical Controller, Security, Advanced Mathematics, Leadership Training**
