Jorge Vásquez

Doctor (c) in Robotic Systems

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SUMMARY

Highly creative problem solver, good communicator, and agile development leader. Interested in designing and implementing complex robotic systems in the real world.

RELEVANT EXPERIENCE

CARNEGIE MELLON UNIVERSITY /Aug 2019 - Present

PhD Researcher - Pittsburgh, US

Developing novel approaches for surface-damage detection using Machine Vision. Working on geometry-based computer vision techniques and unsupervised ML algorithms. Integrating vision methods into mobile robots, specifically UAV. Designing Model-based System Engineering projects for robotics development.

Python | C++ | Pytorch | Matlab | CNN | IPT | Geometry-based Vision

ROBOTICS INSTITUTE / Jan 2021 - Aug 2021

System Lead - Pittsburgh, US

Worked as System Lead of a NASA-fund project MoonRanger, conducted by Dr. Whittaker. First micro-rover to navigate the lunar south pole searching for water. Integrated disciplinary teams for a complete system validation. Capable to passed System Definition Review (SDR).

Systems | Python | Robotics Design | Smartsheet | NASA

MODELING AND SIMULATION CENTER / Jun 2014 - Dec 2017

Director - Santiago, CL

Managed more than 10 research and engineering projects for the whole army. Designing and developing research and engineering projects. Designed and developed an entire virtual shooting range simulator. Designed and developed technological, organizational systems, and simulation clusters.

VR-Forces | Arena | Systems Dynamics | Defense | Leadership

SKILLS

Languages: Python, C++, React Native, Spanish. **Tools:** PyTorch, OpenCV, NumPy, Pandas, PyBullet. **Other:** HTML, ML, DL, Cloud computing.

OTHER PROJECTS

- **Machine Vision** Vision-Based Surface-Damage Detection using Machine Vision.
- **Deep Reinforcement Learning** Terrain Adaptation of Hexapod Robot via Central Pattern Generator and Policy Gradient.
- **Machine Learning** A comparison of machine learning methods for predicting final vehicle destinations .
- **Robotics** MoonRanger Project.
- **Military Simulators** Developed a virtual shooting range for the Military Industry.
- **Technological Organization** Developed a web and organizational cluster for all simulation
- **Mobile Applications** Developed a public-funded winner fitness collaborative mobile application.
- **Emergency Simulators** Designed and Developed a national emergency simulator platform.

EDUCATION

Mechanical Engineering - 2019 - 2023

PhD, Carnegie Mellon University - Pittsburgh, US
Thesis Machine Vision techniques for surface-damage inspection

Mechanical Engineering - 2014

Master, Carnegie Mellon University - Pittsburgh, US
Thesis Multi-UAV Coverage Path Planning for the Inspection of Large and Complex Structures

Computational Design - 2014

Master, Carnegie Mellon University - Pittsburgh, US
Thesis Redesign of a Biomechatronics Prosthesis using a Human-in-the-Loop Optimization

Mechanical Engineering - 2018

Bachelor of Science, University of Santiago - Santiago, Chile
Thesis Design of a Nobel mechanism to simulate recoil ON Galil rifle

Systems Engineering - 2010

Bachelor of Science, Military Polytechnic Academy - Santiago, Chile
Thesis Logistics for the new Battle Field

AWARDS

- Full scholarship in Doctoral Studies, Chilean Government.
- Full scholarship in Masters Studies, Chilean Army
- Best student in System Engineering, Chilean Engineering Association.

ACTIVITIES / INTERESTS

Proactive about learning in a wide range of topics, and happy to discuss those. Favorite physical activities: triathlon and running. Happy amateur oil painter and draftsman.