Jorge Roa

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PROFILE

Motivated robotics and automation engineer with expertise in hardware, software, electronics, and electromechanical systems, passionate about leveraging AI to drive the future of automation and robotics. Experienced in CAD and 3D printing for prototyping and product development. Committed to continuous learning, innovation, and problem-solving. Proficient in working independently or leading teams to deliver cutting-edge technology solutions in fast-paced environments.

WORK EXPERIENCE

Research Scientist
Texas A&M Transportation Institute
📅 08/2022 – present 📍 COLLEGE STATION, TX, USA

- Invented and patented an advanced automated robotic asphalt testing system, sponsored by TxDOT. Led hardware, software, and electronics development with exceptional results.
- Developed a complete Linux-based robotic software ecosystem, including a user-friendly Python3 and PyQt5 UI, IoT communication, multi-threading, and custom C++ machine control code. Implemented multidisciplinary projects on time, from prototype to product.
- Showcased hands-on design engineering expertise through CAD modeling, mechanical assemblies, complex electronics boards, protoboards, PCBs, and power electrical systems.

Graduate Research Assistant
Texas A&M University
📅 06/2021 – 08/2022 📍 COLLEGE STATION, TX, USA

- Conducted research on robotics and automation within the transportation sector, leveraging innovative technologies and robotics to transform manual testing processes into efficient, automated solutions.

Graduate teaching assistant
Texas A&M University
📅 01/2020 – 06/2021 📍 COLLEGE STATION, TX, USA

- Developed sensor feedback controls, path planning strategies, and maintained 30+ autonomous mobile robots while creating teaching materials, instructional videos, and software documentation; taught, supervised, and graded 60+ undergraduate students in five Mobile Robotics Laboratory sections.

EDUCATION

M.S. | Engineering Technology
Texas A&M University
📅 08/2020 – 08/2022 📍 COLLEGE STATION, USA
Thesis: Design and Implementation of an Automated Asphalt Robotic Testing System

B.S. | Mechatronics Engineering
Texas A&M University
📅 08/2017 – 08/2020 📍 COLLEGE STATION, USA

PUBLICATIONS AND AWARDS

Ceramic Binder Jetting Additive Manufacturing: Effects of Powder Particle Size Distribution on Density.
📅 09/2021

- Published: Journal of Manufacturing Science and Engineering
- Lead a team of 8 Students to design, and build a ceramic binder jetting 3D printer

First Place SHELL-ECO Marathon Autonomous Competition
📅 08/2020

Led a team to victory by developing path planning, perception, and control algorithms for an autonomous vehicle using ROS, tested in Microsoft AirSim with Unreal Engine.