Jarrett Bolander

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EDUCATION

RWTH AACHEN UNIVERSITY — Aachen, Germany
M.Sc. Robotic Systems Engineering — Apr 2026
Relevant Coursework: Kinematics, Controls, Factory Planning

TEXAS TECH UNIVERSITY — Lubbock, TX
B.S. Mechanical Engineering — May 2020
Relevant Coursework: Dynamics, MATLAB
Study abroad in Sevilla, Spain

EXPERIENCE

DELTRAO (Dutch robotics startup) — Geldermalsen, Netherlands
Computer Vision Intern
Sep 2025 - Nov 2025

- Constructed a computer vision model for obstacle and landmark recognition from sonar data for an autonomous underwater dredging vehicle, achieving 68% mAP despite noisy environment with high signal attenuation
- Fine-tuned and evaluated multiple deep learning architectures, Faster R-CNN, MobileNet-SSD, YOLOv11, to balance accuracy and latency under real-time constraints
- Optimized inference pipeline for NVIDIA Jetson Orin using ONNX, FP16 quantization and pruning; achieved significant speedup and met 2 FPS target
- Conducted market analysis of acoustic imaging hardware; research informed 13K EUR sensor procurement decision
- Conducted all training on-device due to hardware constraints, requiring deliberate hyperparameter search strategy to maximize limited compute cycles

SHEREC (European Union org automating ship recycling) — Aachen, Germany
Student Researcher / Thesis
May 2025 – Aug 2025

- Composed route planning algorithm for guidance of robotically controlled plasma torch for ship deconstruction
- Reduced combinatorial search space by 94% through implementation of motion primitives, enabling efficient route computation across large-scale environments
- Documented a clean API for integration by other team members into the broader autonomous systems stack
- Prepared and delivered technical briefing on pathfinding methodology and simulation results to a multi-disciplinary audience of SHEREC stakeholders and faculty

TEXAS TECH UNIVERSITY (DISCO Lab) — Lubbock, TX
Student Researcher
Jan 2019 – Jun 2019

- Designed and implemented SLAM from wheel odometry and ultrasonic sensors for obstacle mapping on a ground robot
- Collaborated on search-and-rescue robotics research; implemented and benchmarked clock synchronization algorithms for off-grid drone coordination
- Devised C++ multi-agent communication system utilizing XBee radios across a network of embedded systems for drones, achieving less than 20ms latency for real-time synchronization across 5 agents

PROJECTS

TEXAS TECH UNIVERSITY (Capstone project) — Lubbock, Texas
CAD Design and Programmer
Jan 2019 - May 2019

- Led 4-person team through full design-to-deployment cycle; managed scope, schedule, and budget using Kanban methodology, delivering a functional prototype on time and under budget
- Manufactured custom components and foldable sprayer mechanism in CAD; machined and assembled all mechanical components.
- Authored complete Python control system on Raspberry Pi with Bluetooth PlayStation controller input for real-time remote operation.
- Engineered solutions for tight-space maneuverability and weather resistance
- Matched manual spraying performance while significantly reducing operator workload through wireless remote control

ADDITIONAL

Core Competencies: Autonomous mobile robotics, mechatronics, digital twins, computer vision, controls, PLC programming
Languages: Python, C++, MATLAB,
Tools: Git version control (incl. Github, GitLab), Docker, Linux, PyTorch, OpenCV, Scikit Learn, Pandas, Bash, Fish