LUIS GUZMAN

Seattle, WA | hello@luisjguzman.com | (612) 805-0153 | https://luisjguzman.com

EDUCATION

University of Minnesota Twin Cities — Minneapolis, MN 4.0 GPA
M.S. Robotics *Aug. 2020 – Dec. 2021*

University of Wisconsin — Madison, WI 3.84 GPA
B.S. Applied Mathematics, Engineering, and Physics & Computer Science Certificate *Aug. 2017 – May 2020*

EXPERIENCE

Amazon Web Services Feb. 2022 – Present
Machine Learning Engineer *Seattle, WA*

- Enabled the development of new Just-Walk-Out shopping algorithms by managing the ML Platform, including data mining and retention systems, ground truth ETL jobs, and training and evaluation pipelines
- Reduced operational costs by $8.4M annually by identifying and eliminating IO bottlenecks and implementing effective lifecycle management on petabytes of data
- Automated feature generation and evaluation of new multimodal AI models through AWS Step Function workflows
- Built a data lake cache using AWS Glue and Athena, minimizing duplicated computation of intermediary outputs
- Addressed platform scaling challenges by optimizing call patterns and S3 keyspace, which reduced operational issues and resulted in increased data mining yield from 20 to 99%

University of Minnesota Aug. 2020 – Jan. 2022
Graduate Research Assistant *Minneapolis, MN*

- Researched deep reinforcement learning methods to develop novel robotic learning-by-demonstration systems using PyTorch and MuJoCo virtual environments
- Assisted with teaching graduate-level Introduction to Intelligent Robotic Systems course
- Achieved two publications in ICRA and IEEE-RAM and presented my work at the ICRA conference

Rover Robotics June 2021 – Aug. 2021
Robotics Intern *Wayzata, MN*

- Created the company's endurance testing platform by implementing autonomous vision-based navigation using OpenCV, which enabled 24-7 testing of a small fleet of mobile robots
- Enabled remote monitoring of video and diagnostic data via custom Nginx web server

PUBLICATIONS & PROJECTS

Robotic Embodiment of Human-Like Motor Skills via Reinforcement Learning | *Published in ICRA* 2021
- Incorporated RL-based control policies with human motion tracking data to augment robotic motor skills

Tumbling Robot Control Using Reinforcement Learning | *Published in IEEE-RAM* 2021
- Used proximal policy optimization to develop a sim-to-real control policy on uncertain terrain

Satellite Image Building Detection using U-Net Convolutional Neural Network 2021
- Implemented a UNet CNN building detector in PyTorch, achieving error rates within 1% of the winning submission

Egocentric Prediction of Hand-Object Interaction 2020
- Utilized Mask RCNN object detection and LSTM trajectory forecasting to predict object contact with 81% accuracy

TECHNICAL SKILLS

Languages: Python, Java, Kotlin, Typescript, SQL, Bash
AWS: Step Functions, Batch, EC2, Lambda, S3, DynamoDB, Athena, Glue
Tools: PyTorch, Docker, Git, OpenCV, ROS, CI/CD

HONORS & AWARDS

Highlighted in the University of MN Donor Report (2021)
University of Wisc. "Graduated with Distinction" (2020)
Dean's list recipient - 3 semesters (2018-2020)
BSA Eagle Scout (2014)