Nathan Corral

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Computer Engineer with a master's specialization in AI and a few years of experience in robotics and software engineering, seeking a full-time role in machine learning development with a focus on product deployment.

Job Experience

Humanoid Robots Lab   09.2021 – 09.2022
Research Assistant   Bonn, Germany

- Contributed to research and publications in personalized robot navigation.
- Programmed the ROS interface for 3D localization of humans from an RGBD camera using deep learning and implemented this on a real robot for autonomous navigation.
- Conducted a user study evaluating human-robot-interaction in a VR headset, with a follow-up on real robot hardware.

Head Rush Technologies   12.2019 – 04.2020
Contract Engineer   Boulder, USA

- Contracted to code the firmware on a ATmega328PB Microchip for a proof-of-concept system.
- Completed field tests and project documentation.

Aqronos   11.2018 – 12.2019
Software Engineer   Denver, USA

- Designed ROS nodes for visualization of the company's LiDAR prototype.
- Interacted with a REST API to set parameters on an embedded system.

Education

Rheinische Friedrich-Wilhelms-Universität Bonn   10.2020 – 09.2023
M.Sc. *Computer Science*   Note: 1.7
Thesis: ***Stochastic Transformer for Prediction of Multiple Futures***

- Developed a novel transformer-based predictor architecture, able to learn a distribution over potential futures.
- Detailed comparison against other stochastic-based models in video prediction, boasting higher structural similarity in frame-wise comparisons.
- Applied in the domain of human pose prediction, generated 8 seconds of continued walking after the initial 0.3 seconds of seed motion.

University of Illinois Urbana-Champaign   08.2013 – 05.2017
B.Sc. *Computer Engineering*   GPA: 3.55/4.0

Projects

ROS 2 Whisper   2024
Maintainer   Video, ⬤ Source

- Extended this open source project to support boarder-less, live transcription –
  leading the the release of version 1.4.
- Implemented the C++ code to place special attention on code efficiency and
  scalability.
- Further, I deployed this onto an Nvidia Jetson Orin NX for continuous audio
  transcription.

ROS 2 Computer Vision   2024
Author   Video, ⬤ Source

- Designed a ROS 2 pipeline to run multiple Computer Vision (CV) tasks (Object
  Detection, Per-Pixel Segmentation) in parallel.
- Automatically download modern CV models (such as DETR, Maskformer).
- Run the pipeline on both live camera feed and a dataset, which allowed time
  comparisons between the asynchronous running of multiple models.

Skills

Languages		· English (Native) · German (fluent, C1 self-assessed)
Strengths		· Problem Solving · Cross-Team Collaboration · Reliable · Technical Documentation · Hard Working
Coding		· C++ · Python · Bash · C · LaTeX · Java · Go
Software		· Linux/Ubuntu · GitHub · Docker · ROS/ROS2 · QEMU · Hyperstack · AWS EC2
Knowledge		· Agile · REST API · Test-driven Development · POSIX · Object Oriented Programming · Data Structures
Deep Learning		· Computer Vision · Generative AI · Large Language Models · Gradient Descent Optimization · Retrieval-Augmented Generation · Reinforcement Learning · Point Cloud Processing · CUDA