



# Nathan Corral

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Computer Engineer with a master's specialization in AI and 3+ years of experience in robotics and software engineering, seeking a full-time role in AI/ML development.

## 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.
  - Used the photo-realistic simulator iGibson (Py-Bullet backend) to generate data for a deep reinforcement learning-based path planning algorithm.
- **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.
  - Structured UDP packets and coded both ends of sending and receiving modules.
- **Creative Edge LLC** 08.2017 – 09.2018  
*Software Engineer* Denver, USA
  - Developed applications for cryptocurrency mining in both Windows and Linux.
  - Wrote software managing OS drivers, system configurations, and 3rd party tools.

## 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.
- **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).
- Re-index the model output labels, which may be trained on different datasets, into a universal database with NoSQL.
- Run the pipeline on both live camera feed and a dataset, which allowed time comparisons between the asynchronous running of multiple models.

### Semantic Search using Facebook AI Similarity (FAISS)

2024

*Author*

[Source](#)

- Implemented the first steps in Retrieval-Augmented Generation (ending before "Generation").

## 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