

Brendan Healy

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Education

Master of Science in Mechanical Engineering
San Diego State University May 2023

Bachelor of Science in Mechanical Engineering
University of California Irvine June 2020

Publications

Feature Aggregation in Sound Detection Neural Networks

Investigates the application of feature aggregation within sound source detection CRNNs and proposes a new aggregator approach. Models estimate signal class and relative location, similar to computer vision object detection NNs. Feature aggregators enhance robustness by improving feature scaling and gradient flow.

Experience

Graduate Research Assistant – Deep Learning

Dynamic Systems and Intelligent Machines Lab Jan 2022 – May 2023

Researched and embedded deep learning models for robotic perception (Camera, Lidar, Microphone array). Integrated models by creating ROS packages to retrieve raw sensor data and then publish model predictions.

Robotics Engineer Intern

RheoSense May 2021 – August 2021

Integrated robotic equipment and prototyped new MEMS device. Involved development of robot control software (C#), CAD (SolidWorks), and prototype manufacturing.

R&D Engineer Intern

Hologenix Inc. June 2019 – September 2019

Assisted testing and development of image processing software for product quality assurance. Involved the use of LabView, robotic and optical equipment.

Skills

Machine Learning

Deep Learning
Supervised
Unsupervised
Reinforcement Learning

Artificial Intelligence

Computer Vision
Genetic Algorithms
Path Planning
Fuzzy Logic
Hivemind

Robotics

Sensors (Camera, Lidar, IMU)
ROS
Node.js
Linux
SLAM

ML Libraries

TensorFlow
Scikit-Learn
PySpark

Languages

Python
C/C++
MATLAB
C#

Mechatronics

Microprocessors
Microcontrollers
Embedded Systems

Portfolio

GIT: <https://github.com/bthealy/Portfolio/tree/main>

See GIT branches for certification and project details.

Certifications

Machine Learning

TensorFlow: Advanced Techniques
IBM Data Science Professional

Mechanical

SolidWorks Associate Certificate (CSWA)
Engineer in Training, Mechanical Engineering

Projects

Machine Learning

Deep Learning Feature Aggregation Library
Genetic Algorithm CNN Optimizer
Camera Interference Detector CNN

Artificial Intelligence

Bellman-Ford Path Planner
Genetic Algorithm Path Planner
Fuzzy Logic Stock Market Investor

Robotics

Handheld Robotic Arm
Autonomous Vehicle
Lidar Embedded Decoder / Edge Detector

Mechanical CAD

Robotic Walker Power Train
Helical & Planetary Gear Trains
Stratocaster Guitar