ANTHONY LOWHUR

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Specialization in Artificial Intellegence, Computer Vision, Machine Learning, and Human-Computer Interaction

Skills

LANGUAGES
Python
C
C++
Java
Javascript
SQL
PHP
C#
MATLAB
HTML
CSS
Prolog
ASP Sparc

PLATFORMS
OpenCV
Sklearn
Pybrain
Tensorflow
ROS + Gazebo
Unity3D
Vuforia

HARDWARE
Leap Motion
Microsoft Kinect
Arduino
Raspberry Pi

Education

Rutgers University , New Brunswick
B.S. Computer Science 2018

Online Course Work
Used Massive Online Open Courseware (MOOC) platforms for AI self studies, took higher level CS courses from top universities. Knowledge acquired: Machine Learning, Path Finding Algorithms and Adversarial Search, Reinforcement Learning, and Parallel Programming

Experience

Rutgers University, New Brunswick New Brunswick, New Jersey
Research Assistant Sep 2015 to Current
-Researched in image processing / computer vision and machine learning to have autonomous drone to analyze and recognize the shape of trash on the beach and pick them up accordingly.
- Implemented by using histogram backprojection and morphological transform for segmentation.
- Used bag of words model and support vector machines as well as creating own dataset.
- Designing intelligence of a robot that will compete in the Amazon Picking Challenge through computer vision and machine learning.
- Currently researching in object detection in 3D space using depth maps produced by a Microsoft Kinect.

Texas Tech University
Research Assistant Jun 2016
- Designed a multi-agent intelligence algorithm (swarm intelligence) where a team of ally agents work together to surround and capture a fleeing enemy agent.
- Allowing agents to search for interest points to pursue and surround enemy agent with individual behavior, but minimal communication to work together as an agent team for capturing.
- Implemented planning and diagnostics algorithms using Answer Set Programming (ASP)

Lehigh University Bethlehem, Pennsylvania
Research Assistant Jun 2015 to Aug 2015
- Worked on an emotion recognition program on a robot by using computer vision and machine learning.
- Implemented dense optical flow and support vector machines to create robust classifier resistant to unique facial appearance and poor lighting.
- Research paper presented and published as 1st author at the 2015 IEEE 12th International Conference (MASS) workshop in Dallas, Texas.

Personal Projects

AI Algorithmic Melody Generator
- Takes in a song from a midi, analyzes patterns of the musical structure, and composes its own original melodies based on the patterns it had learned.
- Accomplished that by implementing Long Short Term Memory (LSTM) Neural Network.
- Attempting to make full AI song composer, an AI that can generate entire songs with a series melodies.
- Currently experimenting with restricted boltzmann machines and LSTM layer.

Face Tracking via Haar Classification and Lucas Kanade
- Improved face tracking sample from OpenCV doumentation by combining both Harr Classifcation and Lucas Kanade optical flow algorithm.
- This allowed the computer to track the face/head in various different angles (front face to side face) even with limited face dataset. (Python)

Road Segmentation for Autonomous Vehicles
- Uses computer vision and processing algorithms such as histogram backprojection and morphological filtering to preform road segmentation in order to detect and recognize roads in a noisy environment.
- Made to be implemented in the DriveAI project, an initiative for open-source autonomous vehicles. (Python)

Lyrics Generator based on Markov Chains
- Implemented markov chains on lyrics data scrapped from the web to create program that can generate its own unique set of lyrics based on genre.
- Have the capability of creating lyrics based on syllable count per line. Part of a long term project to create a full AI song composer. (Python)

Check out my website or github to see a lot more projects!