ANTHONY LOWHUR

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vanstorm9

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
Keras

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, Adversarial Search, Reinforcement Learning, 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, bag of words, and support vector machines as well as making dataset
- Currently designing intelligence of an Amazon Picking Challenge robot through computer vision & machine learning
- Researched in object recognition in 3D space, like correspondence grouping, using Microsoft Kinect.
- Implemented 2D object recognition with convolution neural networks. Currently researching in effective image segmentation algorithms for object localization. Leading team of industrial engineering students (senior undergraduate + master graduates) for the development of the autonomous robot. Attempting to lead the team to be the first Rutgers team to enter nationals of the Amazon competition.

Texas Tech University — Lubbock, Texas
Research Assistant — Jun 2016 to Aug 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)
- Made various scripts for data extraction and generation.
- Abstract was accepted and will be presented to the National Conference On Undergraduate Research (NCUR 2017) at the Memphis, Tennessee.

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)

Not enough room to put everything, so please check out my website or github to see a lot more projects!

Publications

Oct 2015

Dense Optical Flow Based Emotion Recognition Classifier
Paper was published at 2015 IEEE 12th International Conference on Mobile Ad Hoc and Sensor Systems
Anthony Lowhur (Rutgers), Mooi Choo Chuah (Lehigh)