

# ANTHONY LOWHUR

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## EDUCATION

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Rutgers University, New Brunswick  
B.S. Computer Science 2019  
Minor: Japanese 2019

Study Abroad: Tsuru University, Japan  
Feb-Aug 2017

## WORK EXPERIENCE

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### Rutgers University, New Brunswick

Computer Vision & Machine Learning Research Assistant

New Brunswick, New Jersey · Sept. 2015 to Current

- Accomplished trash segmentation from beach with histogram backprojection, bag of words, and SVMs for autonomous drone.
- Investigated 3D object recognition algorithms that uses point cloud data extracted from the Microsoft Kinect.
- Used convolutional neural networks and segmentation algorithms for object recognition & localization for Amazon Challenge Robot.
- Coordinated team of engineering students (senior undergraduate & master graduates) for the development of the autonomous robot.
- Currently designing classifier to create segmentation masks on medical images using U-nets

### Prudential Financial

Software Engineering

Roseland, New Jersey · June 2018 to Aug. 2018

- Implemented canny edge detection and morphological transform to be used for whitespace detection for text placement, saving content writers a lot of time.
- Made article summarizer ranking based on word frequency, enable employees to read important documents from minutes to a matter of seconds.
- Designed web scraping and headless browser scripts to retrieve texts and images from multiple sources and automatically publish them to digital signage.
- Designed an automated flyway database migration pipeline using Jenkins that monitors and notifies users of build failures, lowering error response time.

### Texas Tech University

AI Research Intern

Lubbock, Texas · June 2016 to Aug. 2016

- Built a decentralized multi-agent intelligence that will surround and capture fleeing adversarial agent with team of ally agents.
- Utilized matplotlib and kinematics to design simulator as well as experimenting with swarming algorithms.
- Abstract was accepted to the National Conference On Undergraduate Research (NCUR 2017) at the Memphis, Tennessee.

### Lehigh University

Computer Vision & Machine Learning Research Intern

Bethlehem, Pennsylvania · June 2015 to Aug. 2015

- Achieved emotion recognition with dense optical flow and SVMs, resistant to unique facial features and poor lighting, on a robot.
- Research paper presented and published as 1st author at the 2015 IEEE 12th International Conference (MASS) in Dallas, Texas.

### Freelance Work

Software Developer

Sept. 2016 to Current

- Leveraged deep learning algorithms to create efficient soccer ball tracker for DribbleUp, making its way into a production environment.
- Designed pure computer vision solution to create real-time clay pigeon tracker & hit/miss recognizer, currently being in active use.

## PROJECTS

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### AI Algorithmic Melody Generator

- AI analyzes music structure from song to generate original music using LSTM neural networks.
- Attempting to make full AI song composer, an AI that can generate entire songs with a series melodies.

### Road Segmentation for Autonomous Vehicles

- Used histogram backprojection and morphological filtering to preform road segmentation for a self-driving car startup.
- Able to recognize roads in noisy environment.

More projects on my website!

## SKILLS

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

**PLATFORMS + LIBRARIES:** OpenCV, Sklearn, Pybrain, Tensorflow, Unity3D, Vuforia, Keras, Node.js, React, Amazon Web Services, Jenkins

**HARDWARE:** Leap Motion, Microsoft Kinect, Arduino, Raspberry Pi, Oculus Rift

## PUBLICATIONS

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Dense Optical Flow Based Emotion Recognition Classifier   October 2015

- 1st author paper publication on 2015
- IEEE 12th International Conference on Mobile Ad Hoc and Sensor Systems in Dallas, Texas
- Anthony Lowhur (Rutgers), Mooi Choo Chuah (Lehigh)