Steven Basart
Computer Science PhD student

xksteven.com
xksteven at uchicago.edu
(954) 805-3651

Research Interests

My primary area of focus has been within computer vision. For the years of 2015-2017, I have worked on generative models, specifically GANs, coming up with both a measure and a method to use GANs to interpret other classifiers. I have since begun exploring techniques to make models more robust. The majority of my research focuses on applications of machine learning.

Education

Doctor of Philosophy (Computer Science) 2014 to ongoing
University of Chicago, Chicago, Illinois

Bachelor of Science (Biochemistry and Computer Science) 2010 to 2014
University of Miami, Miami, Florida

Courses

Machine Learning	Robot Planning/AI	Computer Vision
Algorithms	Databases	

Teaching

Computational Biology (Autumn 2015)	Intro. to Computer Science (Winter 2016)	Machine Learning (Spring 2016)
		Intro. to Computer Science (Autumn 2016)
Machine Learning (Autumn 2017)	Intro. to Computer Science (Autumn 2018)	Machine Learning (Winter 2019)
		Machine Learning and Large-Scale Data Analysis (Spring 2019)

Research Experience

Computer Science 2014 to current
I am working with Dr. Greg Shakhnarovich at TTIC in the areas of machine learning and computer vision.

Biochemistry 2011 to 2014

I worked with Dr. Richard Myers at the University of Miami trying to create a generic genetic therapy via transducible gene editing proteins. I ran western blots, gel electrophoresis, transductions, PCR, and electroporation

Technical

Python	C	Java
Pytorch/Tensorflow	Git / SVN	

Professional History

Autobon AI *Head of AI* **2019 to 2020**

I worked on developing the AI/ML infrastructure at Autobon, which involves designing data ingestion into Amazon AWS, constructing labeling tasks, and quality assurance over the labeled data. **aws**

Google Brain *Research Intern* **Summer 2018**

I worked in NLP and collaborated with several teams. I worked in the area of Fact Checking related to this paper to deal with the problem of content abuse and also worked with the Google News team. **python, pytorch, tensorflow, apache-beam, flume**

Here Maps *Research Intern* **Summer 2017**

I worked on models to better predict arrival times (ETA estimates) and lane level navigation prediction which can be used for autonomous vehicles. **python, pytorch**

Here Maps *Research Intern* **Summer 2016**

I developed a model that creates road probability maps that can be used to detect differences between artificial maps and the real roads. **python, tensorflow**

Projects

Multilabel OOD Detection

multilabel-ood

Evaluating out-of-distribution (OOD) techniques on multilabel classification tasks.

Sparse Hypercolumns

sparse hypercolumns

Makes an interface for creating memory efficient sparse hypercolumns. Used in automatic colorization and classification.

OpenGL Renderer

myRenderer

I created a simple OpenGL renderer to render some height maps and draw some objects. Applies simple lighting and texturing.

BattleShip game over internet

BattleShip

I created a simple Battleship game in C that has a client, server interface.

Publications

Aligning AI With Shared Human Values **In Submission**

We create a new benchmark to evaluate AI Safety by measuring how well models agree with human values.

The Many Faces of Robustness: A Critical Analysis of Out-of-Distribution Generalization **In Submission**

We collect a new dataset and introduce a new technique which achieves SOTA on OOD detection.

A Benchmark for Anomaly Segmentation **In Submission**

In this work we both construct a synthetic dataset and utilize pre-existing datasets to evaluate different techniques for Anomaly Segmentation. We also show how some classic approaches can improve performance in this task.

Natural Adversarial Examples **ICML 2019 Workshop**

In this work we construct a dataset which captures long tail distributions to highlight where current models fail in terms of generalization.

DIODE: A Dense Indoor and Outdoor DEpth Dataset **2019**

In this work we use a single depth sensor to capture both indoor and outdoor scenes to create the most accurate depth dataset to date.

Analysis of Generative Adversarial Models **2017**

This is my master's work in which I introduce a novel measure for quantitatively assessing the quality of generative models and present a method for utilizing GANs to interpret classifiers.