

Theodore Stein Nowak

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Personal Profile

I am interested in interdisciplinary applications of Machine Learning, Computer Vision, and Robotics, especially those seeking robust, real-world outcomes and promoting broad societal benefit.

Education

2016-2018	M.S. Robotics - University of Michigan, Ann Arbor GPA: 3.56 Graduate Student Instructor - Graduate Robotics Systems Lab (ROB 550) Graduate Student Research Assistant - Corso (COG) Lab Officer - Robotics Graduate Student Council Robotics Representative - Graduate Student Advisory Committee
2011-2015	B.S. Electrical Engineering - Case Western Reserve University Minors: Physics, Spanish GPA: 3.53 Teaching Assistant - Introduction to Circuits (ENGR 210) Research Assistant - Case Western Reserve Neural Engineering Center Organization Affiliations - CWRU Baja SAE, APO, La Alianza, Case Hockey, HKN

Recent Employment History

Jan. 2017 - Jan. 2018	Graduate Robotics Systems Lab <i>Graduate Student Instructor</i> With two faculty co-instructors, I taught the Graduate Robotic Systems Lab course (ROB 550) at the University of Michigan. I helped prepare and present lectures, prepare the course plan and labs, make robots, write code, and lead lab sections. Labs included a 3D camera guided 6-DOF robotic manipulation lab; a two wheel inverted pendulum navigation and control lab; a mobile ground robot SLAM and exploration lab; and an autonomous drone object grasping and delivery lab. For my work I was nominated by the Robotics Department for the Towner Prize for Outstanding Engineering GSIs. Tags: C, C++, python-2.7, sh/bsh, Solidworks, Inventor CAD
Oct. 2015 - Aug. 2016	Corso (COG) Lab, University of Michigan, Ann Arbor <i>Engineer in Research</i> I created a mobile robotic Computer Vision platform to engage in learned, spatial localization and navigation. I additionally designed and managed a lab computing cluster, our lab workstations, our lab 3D printer, and our extensible 100+TB lab storage server. Tags: C, C++, python-2.7, sh/bsh, Solidworks

Publications

- [1] Theodore S. Nowak and Jason J. Corso. Deep Net Triage: Analyzing the Importance of Network Layers via Structural Compression. *ArXiv e-prints*, mar 2018.
- [2] Thomas P. Ladas, Chia-Chu Chiang, Luis E. Gonzalez-Reyes, Theodore S. Nowak, and Dominique M. Durand. Seizure reduction through interneuron-mediated entrainment using low frequency optical stimulation. *Experimental neurology*, 269:120–132, 2015.

Recent Prior Research

Jan. 2018 - Language Guided Localization

May 2018 *Graduate Student Research Assistant - Corso (COG) Lab*

I helped design a framework to interpret joint lingual and visual percepts to predict a desired path in a maze.

Tags: python-2.7, Tensorflow, Keras

June 2017 - DARPA D3M: Data Driven Discovery of Models

Jan. 2018 *Graduate Student Research Assistant - Corso (COG) Lab*

Large-scale (20 teams) DARPA funded project to create a pipeline automating Machine Learning method selection and implementation. I created the first version of the University of Michigan's project library for D3M, contributed implementations of state of the art image recognition methods, and participated in a "hackathon" with other teams in Washington, D.C.

Tags: python-2.7, python3, Tensorflow, Keras, Git

May 2017 - Deep Network Compression

Jan. 2018 *Graduate Student Research Assistant - Corso (COG) Lab*

I investigated applying naive DNN structural modifications to a variety of networks and data sets in search of underlying trends between network efficacy, network structure, and data complexity. Work was submitted to IJCAI and ICLR, and settled on Arxiv.

Tags: python-2.7, pytorch, Tensorflow, Keras, Git

Recent Personal Projects

June 2016 - Usync: Personal Dropbox

May 2018 I created my own cloud server system. The framework automatically syncs my files between laptops and this server differentially. I've publicized this effort on GitHub for others to enjoy.

Tags: sh/bash

Recent Scholarships, Awards, and Recognition

Oct. 2017 Towner Prize for Outstanding Engineering GSIs

Robotics Department Nominee

Miscellaneous

Languages: English (Native), Spanish (Fluent, Secondary), German (Elementary)

Other Projects: Kaggle: Donors Choose, Coursera, Networking Scripts, Personal Website

Other Interests: Public Policy/Robotic & AI Ethics, Field Robotics, International Policy & Conflict, Teaching

Recreation: Soccer, Trail & Through Running, Orienteering, Backpacking, Sailing, Low-Budget Travel

Primary References

Name	Ella Atkins
Company	University of Michigan
Position	Robotics Institute Chair
Contact	ematkins@umich.edu
Association	Co-Instructor ROB 550

Name	Peter Gaskell
Company	University of Michigan
Position	Lecturer
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