

Theodore Stein Nowak

Address	510 N. State St. Ann Arbor, MI 48104	Mobile Phone	+1-(210)-818-0309
Date of Birth	14 August, 1993	Email	tsnowak@umich.edu
Nationality	USA	GitHub	tsnowak
		Website	www.theodorennowak.com

Statement of Interest

I am interested in continuing to work at the intersection of Computer Vision and Robotics, and especially in opportunities involving 3D reconstruction and multi-sensor perception on robust, real-world platforms.

Education

2016-2018	M.S. Robotics - University of Michigan, Ann Arbor 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 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> <p>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, design robotic systems, write code, implement algorithms, 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.</p> <p>Tags: C, C++, python-2.7, sh/bsh, git, make, OpenCV, Solidworks, Inventor CAD, Linux</p>
Oct. 2015 - Aug. 2016	Corso (COG) Lab, University of Michigan, Ann Arbor <i>Engineer in Research</i> <p>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.</p> <p>Tags: C, C++, python-2.7, sh/bsh, git, OpenCV, Solidworks, Linux</p>

Publications

- [1] Theodore S. Nowak and Jason J. Corso. Deep Net Triage: Analyzing the Importance of Network Layers via Structural Compression. *ArXiv*, 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, git, Tensorflow, Keras, Linux

June 2017 - DARPA D3M: Data Driven Discovery of Models

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

A large-scale 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, python-3, OpenCV, SKLearn, Tensorflow, Keras, git, Linux, pip setuptools

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 ICLR, IJCAI, and settled on Arxiv.

Tags: python-2.7, pytorch, Tensorflow, Keras, git, Linux

Notable Coursework

Advanced Computer Vision: Graphical model and deep learning Computer Vision methods and projects.

Matrix Methods for Image Processing and Machine Learning: Matrix factorization and decomposition.

Mobile Robotics: ROS based SLAM navigation and grasping project based course.

Robotic Systems Lab: Manipulation, inverted pendulum control, and SLAM exploration projects.

Special Topics on Autonomous Driving: LTI, LQR, and MPC control and SIFT/SURF, Deep Learning vision.

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/bsh, git

Miscellaneous

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

Other Projects: Kaggle, Coursera, Quantopian, 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, Scuba Diving

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
Contact pgaskell@umich.edu
Association Co-Instructor ROB 550