NATHAN LOUIS

1301 Beal Avenue Rm 4234 Ann Arbor, MI 48109

natlouis@umich.edu

EDUCATION

University of Michigan, Ann Arbor, MI   August 2017 - April 2022
Ph.D., Electrical Engineering
Advisor: Dr. Jason J. Corso

Kennesaw State University, Marietta, GA   August 2012 - July 2017
B.S., Electrical Engineering

RESEARCH AND WORK EXPERIENCE

Graduate Research Assistant   September 2017 - Present
COG Lab - University of Michigan   *Ann Arbor, MI*

· Perform Computer Vision research, advised by Dr. Jason J. Corso, primarily in the areas of visual tracking, language grounding, and general video understanding
· Carry out experiments, implement frameworks and deep learning models using PyTorch

Physics Student Assistant   August 2012 - December 2016
Kennesaw State University   *Marietta, GA*

· Assist lab manager with weekly assembly and disassembly of physics labs

Summer Undergraduate Research in Engineering/Sciences   May 2016 - Aug 2016
Georgia Institute of Technology   *Atlanta, GA*

· Project titled: Improving the Computer Vision Pipeline Through the Application of a Damped Gradient Energy
· A summer research project conducted with Dr. Patricio Vela. This was a process that aimed to reduce the amount of information necessary to produce feature vectors for some computer vision algorithms that utilize gradients. Our baseline was the Histogram of Oriented Gradients algorithm. We conducted different experiments that compared the baseline feature vectors to the pre-processed feature vectors. This research was presented at the SURE symposium.
· I also designed and programmed a circuit board that performs servo control and GPIO functions. The circuit board uses an Arduino micro and several electric components to operate up to 7 servo motors simultaneously.

Electrical Engineering Co-Op   January 2016 - May 2016
Shaw Industries   *Cartersville, GA*

· Learned how safety circuits are operated, designed, and programmed
· Completed troubleshooting on logic failures on a carpet rollup section

Electrical Engineering Co-Op   May 2015 - August 2015
Shaw Industries   *Cartersville, GA*

· Learned how to setup and program Allen-Bradley PLCs and HMIs using Rockwell Automation software
· Managed project to install optical encoder feedback on tile cutting machine
· Learned how to commission a drive to communicate with a controller over Ethernet

Walkntrade   August 2013 - April 2015
walkntrade.com

· Co-founder & Senior programmer

· This project was developed with my fellow colleagues on campus. This was a service designed as an online marketplace for colleges students within a given school. We conducted focus groups and implemented different marketing strategies to advertise & improve the service. I developed and launched an Android application that is currently still in the Google Play Store.

Electrical Engineering Co-Op August 2014 - December 2014
Shaw Industries *Chatsworth, GA*

· Aided in installation of Tufting panel
· Performed FMEA and RCA analyses
· Assisted electricians in problem diagnostics, electrical auditing, and PLC programming
· Learned about various processes in carpet manufacturing

Louis Stokes Alliance For Minority Participation Summer Research May 2013 - August 2013
Kennesaw State University *Marietta, GA*

· Projected titled: Smart Sensor Design & Development
· A summer research project conducted with Dr. Dan Lo. This was designed to read data from sensors and transmit it over Bluetooth to an Android smartphone device. These sensors included medical device sensors, pulse sensors, and a dust sensor. The data from these peripheral devices were interpreted as graphs or visual data on the Android phone. This research was presented an PLSAMP fall symposium.

SKILLS AND INTERESTS

Skills	Python, PyTorch, MatLab, Java & Android programming, ControlLogix
Interests	Computer Vision, Machine Learning, Signal & Image processing
Platforms	OS X, Windows, Ubuntu

PEER REVIEWED CONFERENCE PUBLICATIONS

L. Zhou, **N. Louis**, J. J. Corso. *Weakly-Supervised Video Object Grounding from Text by Loss Weighting and Object Interaction.* BMVC, 2018

TECHNICAL PRESENTATIONS

Poster Presentations

· Engineering Graduate Symposium (October 2018)

Weakly-Supervised Video Object Grounding from Text by Loss Weighting and Object Interaction
· Michigan AI Symposium (November 2018)

Weakly-Supervised Video Object Grounding from Text by Loss Weighting and Object Interaction

VOLUNTEER SERVICE

College of Engineering Xplore Workshop June 2018
Lights, Pinholes, and Cameras *Ann Arbor, MI*

· Several engineering workshops held for middle school aged students over the course of two days. I presented on the importance of light and lenses for rudimentary to complex vision systems. The students all took home hand crafted pinhole cameras.

PSLSAMP Outreach Fall 2015
Marietta Middle School *Marietta, GA*

· Twice a week, worked as a classroom assistant and helped students complete various science projects.

AWARDS AND ACHIVEMENTS

Recipient, Rackham Merit Fellowship   Fall 2017

Dean's List, School of Engineering   Fall 2012 - Spring 2017

Awarded PSLSAMP Stipend   Spring 2013, Fall 2013, Spring 2014, Spring 2015, Fall 2015

Recipient, Shaw Industries Scholarship: Fall 2013, Spring 2014