

NATHAN LOUIS

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EDUCATION

- | | |
|---|--------------------------|
| University of Michigan , Ann Arbor, MI
Ph.D. , Electrical Engineering
Advisor: Dr. Jason J. Corso | August 2017 - April 2022 |
| Kennesaw State University , Marietta, GA
B.S. , Electrical Engineering | August 2012 - July 2017 |

RESEARCH AND WORK EXPERIENCE

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| Graduate Research Assistant
<i>COG Lab - University of Michigan</i> | September 2017 - Present
<i>Ann Arbor, MI</i> |
| <ul style="list-style-type: none">· Perform Computer Vision research, advised by Dr. Jason J. Corso, primarily in the areas of visual tracking, language grounding, and general video understanding· I've done work in video object grounding, object detection, video object tracking, learning motion models from Kalman filters, and human pose estimation & tracking· My roles include: Identifying problems in literature, developing new ideas, and carrying out experiments with deep learning models in PyTorch | |
| Physics Student Assistant
<i>Kennesaw State University</i> | August 2012 - December 2016
<i>Marietta, GA</i> |
| <ul style="list-style-type: none">· Assist lab manager with weekly assembly and disassembly of physics labs | |
| Summer Undergraduate Research in Engineering/Sciences
<i>Georgia Institute of Technology</i> | May 2016 - Aug 2016
<i>Atlanta, GA</i> |
| <ul style="list-style-type: none">· 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
<i>Shaw Industries</i> | January 2016 - May 2016
<i>Cartersville, GA</i> |
| <ul style="list-style-type: none">· Learned how safety circuits are operated, designed, and programmed· Completed troubleshooting on logic failures on a carpet rollup section | |
| Electrical Engineering Co-Op
<i>Shaw Industries</i> | May 2015 - August 2015
<i>Cartersville, GA</i> |
| <ul style="list-style-type: none">· 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
<i>walkntrade.com</i> | August 2013 - April 2015 |

- 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

Shaw Industries

August 2014 - December 2014

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

Kennesaw State University

May 2013 - August 2013

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

Research Interests	Video object detection & tracking, Video language grounding
Skills	Python, PyTorch, MatLab, Java & Android programming, ControlLogix
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

AI4ALL

University of Michigan

July 2019

Ann Arbor, MI

- AI4ALL is a nonprofit with a focus on increasing diversity and inclusion in the field of Artificial Intelligence. We invited 30+ high school students to stay at the University of Michigan for a two-week period. During this time, they learned about the basics of Machine Learning, A.I, completed a project. My role was an instructor was to linear and non-linear regression techniques, coding basics, and aid a team in completing a group project.

STEMulation

University of Michigan

March 2019

Ann Arbor, MI

- Graduate Society of Black Engineers and Scientists invited high school students to campus to learn about college, engineering, and to participate in fun engineering/science activities. I participated as one of the volunteers in the planning and execution of this event.

College of Engineering Xplore Workshop

Lights, Pinholes, and Cameras

June 2018

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

Marietta Middle School

Fall 2015

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