

Titus Lungu

www.tituslungu.com

+1 (440) 212-3144

tituslungu@gmail.com

Los Angeles, California

U.S. Citizen

Education

Master of Science, Machine Learning and Artificial Intelligence, June 2017

University of California, Los Angeles

Los Angeles, California

Henry Samueli School of Engineering and Applied Science

Facial recognition/generation, election prediction, vision, cognition, reasoning, big data, social networks, image reconstruction

Artificial Intelligence Nanodegree, November 2017

Udacity

Search and Optimization, Probability Models, Computer Vision, Logic, Reasoning, and Planning, Natural Language Processing (NLP)

Deep Learning Foundations Nanodegree, June 2017

Udacity

Linear Regression, Neural Networks, Cloud Computing, Sentiment Analysis, Recommender Systems, Drone Image Tracking, Prediction, Generative Models, Chatbots, Gamebots, Data Visualization, Image Compression, One-shot Learning (Probabilistic Programming)

Bachelor of Science, Mechanical Engineering, May 2016

Cleveland State University

GPA: 3.90

Cleveland, Ohio

Washkewicz College of Engineering, Mandel Honors College

Summa c. Laude, Tau Beta Pi Engineering Honors Society, IEEE Robotics and Automation Society, American Society of Mechanical Engineers, Cleveland Engineering Society, Engineering Co-op Program, President's List, Dean's List

Skills

Computer

C++; C#; HTML5; CSS; Python; MATLAB; Java; Git; Arduino; MS Visual Studio; Linux OS; ROS; SolidWorks; SolidWorks Simulation; Autodesk Inventor; Salome; Slicer; SAP; SmarTeam; MathCAD; Adobe Reader; MS Word, PowerPoint, Excel, Outlook

Manufacturing

Subtractive: horizontal lathe, vertical mill, CNC machine coding; Additive: 3D printing

Languages

English, Romanian, French

Research Experience

Robotics Control, University of California, Los Angeles - Dr. Song-Chun Zhu

9/2016 - Present

Center for Vision, Cognition, Learning, and Autonomy

- Learned how to use the Robot Operating System (ROS) and send commands to a Rethink Robotics Baxter robot wirelessly through the Linux terminal.
- Investigated methods for creating a smooth position and velocity controller for the seven degree-of-freedom robot arms.
- Tested force/torque sensors in robot wrists to ensure accurate recording could be done through the respective ROS Topics.

Machine Learning, Cleveland State University - Dr. Eric Schearer

5/2015 - 7/2016

Mechanics and Control of Living Systems Laboratory

- Using machine learning to improve control and incorporate intuitive caregiver feedback in Functional Electrical Stimulation neuroprostheses for patients with tetraplegia, to allow them to regain functionality in their arms.
- Using Gaussian Process Regression (GPR) in MATLAB to learn inverse dynamics of a system and use this to control the system in a new way.
- Working with Dr. Antonie van den Bogert to modify Dynamic Arm Simulation software to incorporate GPR for learning inverse dynamics of the human arm.
- Designing and building a robot to be controlled with GPR and learn new motions based on tactile feedback. Working with Dr. Hanz Richter.
- Working with the Physical Therapy department at Cleveland State University to modify toy electric cars for children with disabilities, particularly down-syndrome.

Active Surveillance as a Service, Cleveland State University

8/2015 - 5/2016

Senior Design Capstone Project

- Creating a prototype of a cloud-hosted software to stream live surveillance footage from security cameras throughout a city.
- Utilizing machine learning and computer vision techniques to detect pedestrians in-frame and track individuals throughout a video and across multiple cameras.

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- Developing portable security modules for students to carry and signal the occurrence of a crime via a button press, which captures GPS location of the crime.
- Constructing appropriate database infrastructure, hosted on Microsoft's Azure cloud, to collect and organize all data from the system and stream it to a client side app.
- Developing a client side app to stream live camera footage and provide GPS tracking of criminal suspects for law enforcement use.

Robotic Simulation, Case Western Reserve University - Dr. Roger Quinn

6/2015 - 8/2015

Biologically Inspired Robotics Laboratory

- Learning to use Gazebo Simulation software in Ubuntu and wrote a comprehensive set of operating instructions.
- Compiling detailed list of simulation tools to help make informed decisions on the best software for the lab.

Biomechanics, Cleveland State University - Dr. Jason Halloran

12/2014 - 5/2015

Mechanics and Control of Living Systems Laboratory

- Designing simulation-informed prosthetic sockets for lower limb amputees utilizing Python, Salome, and Slicer.
- Using growth segmentation methods in Slicer to analyze geometries from MRI images.
- Developing preliminary script for automated creation of socket geometries using iterative analysis.

Industry Experience

Swagelok, Valve Services Group - *Design Engineer Intern*

Solon, Ohio

5/2014 - 8/2014

- Led design and process/efficiency improvement projects while understanding valve inner workings and other fluid products.
- Designing, analyzing, and testing new test fitting for valves for high pressure applications.
- Optimizing tool chain layout of a mill-turn CNC machine to save \$40,000 per year by increasing cycle efficiency.
- Rewriting over 130 CNC programs for new tool positions for mill-turn machine.
- Cataloging, drafting, and redesigning over 500 unique assembly tools and company policy for future tooling organization.
- Arranging team meetings, presenting projects, and updating company documentation which resulted in a positive and progressive impact on upper management.

Parker Hannifin, Hydraulic Valve - *Design Engineer Intern*

Elyria, Ohio

10/2013 - 12/2013

- Working with Engineering, R&D lab, and Quality while understanding full process to produce products.
- Various research projects such as finding a replacement material for old copper-lead gaskets and a finding possible vendors.
- Lab testing/inspection of valve materials.
- Drafting and preparing material corrosion reports for customers.
- Quality testing of spool dimensions for various valve sizes.
- Finding appropriate replacements for valves that are obsolete and indicating valve parts for discontinuation.

Cristal, Reliability Department - *Reliability Engineer Co-op*

Ashtabula, Ohio

5/2013 - 8/2013

- Cooperating with Rotating Equipment Engineer using software such as SAP to compile information for plant equipment.
- Reviewing pipe circuits for coherence and recommend new more efficient piping circuits for the plant's hazardous chemicals.
- Drafting isometric drawings of HCl piping in the plant.
- Preparing inspection report summaries for administration to review and present projects to upper management.
- Communicating with OEMs to acquire data sheets and performance curves on their products.
- Inspecting in field for tanks, spools, pipes, heat exchangers, and other instrumentation.

Publications, Conferences, Presentations

- **Senior Design Capstone Project**: "Active Surveillance as a Service", Cleveland State University, May 2016
- **Honors Thesis**: "Using Tactile Feedback and Gaussian Process Regression in a Dynamic System to Learn New Motions", Cleveland State University, May 2016.
- **University Journal**: Lungu, Titus; Tachynskyy, Igor; and Tayyara, Omri. "Walking Simulator Mechanism." *The Downtown Review*. Vol. 2. Iss. 2 (2015). <<http://engagedscholarship.csuohio.edu/tdr/vol2/iss2/4/>>.
- **Conference Poster**: Lungu, Titus; Schearer, Eric M. "Learning Inverse Dynamics with Gaussian Process Regression." The 9th Annual Cleveland State Interdisciplinary Research Conference. Cleveland State University. Cleveland, Ohio. Nov. 2015.
- **High School Presentation**: Lungu, Titus. "Robots, Prosthetics, and Artificial Intelligence." High School Fall Visit Day. Cleveland State University. Cleveland, Ohio. Oct. 2015.
- **Research Poster**: Lungu, Titus; Schearer, Eric M. "Learning Inverse Dynamics with Gaussian Process Regression." Engineering Research Day. Cleveland State University. Cleveland, Ohio. Oct. 2015.

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Honors

- National Science Foundation Graduate Research Fellowship Program, 2016
 - Honorable Mention for excellent research proposal.
- 1st Place, Senior Design Capstone Project, Cleveland State University, 2016
 - Interdisciplinary team, placed first out of over 60 teams (\$1,000).
- Summa c. Laude, Cleveland State University, 2016
- Outstanding Mechanical Engineering Student Achievement Award, Cleveland State University, 2016
 - Highest GPA out of mechanical engineering class.
- Undergraduate Research Grant, Cleveland State University, 2015
 - \$1,000 stipend for machine learning research proposal.
- President's Award for Excellence in Diversity, Cleveland State University, 2015
 - Received in collaboration with the engineering Dean's Diversity Council for taking inclusion and mentorship initiatives.
- Honors College Scholarship, Cleveland State University, 2012-2016
 - Full tuition, four year scholarship (\$40,000) based on strong academic record and personal statement.

Leadership

Jack, Joseph and Morton Mandel Honors College, Cleveland State University

8/2012 - 5/2016

Honors Student

- Keynote speaker at the Honors College dedication ceremony, November 9, 2015.
- Member of the search committee for the dean of the Honors College at Cleveland State.
- Representative to the Board of Trustees on behalf of the Honors College at Cleveland State.
- Editor for *The Downtown Review*, a "double-blind" peer reviewed academic journal.

Washkewicz College of Engineering, Cleveland State University

1/2014 – 5/2016

Student Leader

- Student representative to the Inter-University Council meeting in Columbus, Ohio. Met with state senators and representatives to discuss funding, educational, and social issues affecting Ohio public universities.
- Working with Parker Hannifin executives and engineers to design a new company-sponsored laboratory in the engineering college.
- Working with the dean, architects, and professors on the Leadership Planning Team for the new engineering building.
- Attending *Ideas for Tomorrow* Speaker Series at The Cleveland Clinic, featuring Dr. Sebastian Thrun and Dr. David Agus.
- Attending Youth Forum on *The Power of Innovation* at the City Club of Cleveland.

American Society of Mechanical Engineers, Cleveland State University

1/2013 - 1/2015

President (2014), Treasurer (2013)

- Designing and constructing a hexapod robot for salting snowy walkways and spreading fertilizer on various terrains.
- Placing first in university's catapult competition for distance and target destruction.
- Assisting the Dean's office with plans for college renovations and office relocation.
- Repairing Plastic Injection Molding Machine in Cleveland State University's machine shop.
- Partnering with Piccadilly Group LLC., a new small business in Cleveland, and help market them as a fundraising event.

Dean's Diversity Council, Cleveland State University

11/2014 - 5/2015

Student Representative

- Received the President's Award for Excellence in Diversity 2014-2015.
- Created mentoring program to pair engineering students with industry engineers to provide tailored guidance and one-on-one support for students in everything from career building to time management and studying tips.
- Communicating student diversity issues and increasing awareness of council's actions and events throughout college.
- Ensuring the inclusion and participation of minorities through events, conferences, and competitions at Cleveland State University and elsewhere.

Presidential Student Ambassador, Cleveland State University

9/2013 - 12/2014

- Representative and volunteer at presidential events, Board of Trustees functions, awards ceremonies, and charitable events such as *Relay for Life*.
- Volunteering at and attending TEDx Cleveland State University 2014, *The Right to Dream*.

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Youth Group Committee, Cleveland Romanian Baptist Church

4/2010 - 5/2014

Secretary

- Partaking in two humanitarian aid/mission trips to impoverished areas of the Romanian countryside.
- Communicate events, meeting times, and other proceedings to all members of youth group and church leadership.
- Helped organize local, national, and international activities and programs including holiday concerts, national conventions and youth camps across the US, and trips to Romania.