

Kim N Luong

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Education

M.Sc. in Robotics

UNIVERSITY OF PENNSYLVANIA

2016 - 2018

B.Sc. in Mechanical Engineering

UNIVERSITY OF SOUTHERN CALIFORNIA

2011 - 2016

Experience

University of Pennsylvania, *Electrical & Systems Engineering Department*

Philadelphia, PA

ADJUNCT LECTURER

July 2020 - Present

- Teach ESE519: Real-time Embedded Systems to class of 32 students <http://ese519.seas.upenn.edu/>
 - Topics include microcontroller basics, embedded architectures, interaction with devices, and principles of real-time operating system
- Developed labs, worksheets, and quizzes to reinforce student learning on concepts such as power management, interrupts, ADC, PWM, and FreeRTOS
- Expanded and adapted material for online learning

mLAB - Real-Time and Embedded Systems Lab, *Advisor: Dr. Rahul Mangharam*

Philadelphia, PA

RESEARCH ASSOCIATE

January 2020 - Present

- Designed 4 layer PCB for power distribution and created related data sheet for F1TENTH vehicle <http://f1tenth.org/>
- Designed platform deck as well as corresponding mechanical drawings for mounting of vehicle's autonomy components
- Lead, organize, and manage projects (e.g. tutorials at conferences, competitions, etc.) for F1TENTH
- Work with front end developer to create content for website
- Synthesize and package ESE615 course materials so that it can be taught at other universities
- Maintain and update F1TENTH hardware and software and write related technical documentation

InventXYZ,

Philadelphia, PA

COURSE DEVELOPER

Summer 2019

- Created an Arduino-based lab for high school students to learn algebra and engineering at the same time
- Worked with high school teachers make sure the lab adheres to state standards

Modular Robotics Lab, *Advisor: Dr. Mark Yim*

Philadelphia, PA

GRADUATE RESEARCHER

2016 - 2019

- Researched methods to control passively stable flying vehicle
- Designed printed circuit board for Piccolissimo, world's smallest self-powered flying vehicle
- Developed experiments to map steering directions to achieve open loop control of vehicle

Automatic Coordination of Teams Robotics Lab, *Advisor: Dr. Nora Ayanian*

Los Angeles, CA

UNDERGRADUATE RESEARCHER

2015-2016

- Developed algorithm in Python to create a light painting using a team of robots

Army Research Lab West, *Advisor: Dr. Ethan Stump*

Playa Vista, CA

VISITING RESEARCHER

Summer 2016

- Implemented algorithm in C++ to include prioritized faces in 2D multi-target tracking

Shock Wave Lab, *Advisor: Dr. Veronica Eliasson*

Los Angeles, CA

UNDERGRADUATE RESEARCHER

2013-2015

- Designed and performed experiments to study underwater shock focusing in PMMA samples containing a logarithmic cutout

Teaching

ESE519: Real-Time Embedded Systems

UPenn, Philadelphia, PA

TEACHING ASSISTANT

Fall 2019

- Held weekly office hours and answered student questions through Piazza, the online Q&A platform (29 students)
- Led weekly labs and recitations to reinforce students' learning of materials
- Graded lab assignments

Girls in Engineering, Mathematics, & Science (GEMS) Summer Camp

UPenn, Philadelphia, PA

COURSE INSTRUCTOR

Summer 2018, 2019, 2019

- Introduced robotics to middle school girls using LEGO Mindstorms during a one week camp (24 students)

ESE350: Embedded Systems/Microcontroller Lab

UPenn, Philadelphia, PA

TEACHING ASSISTANT

Spring 2019

- Held weekly office hours and answered student questions through Piazza, the online Q&A platform (41 students)
- Led weekly labs and recitations to reinforce students' learning of materials
- Mentored teams for final projects

ESE111: Atoms, Bits, Circuits, & Systems

UPenn, Philadelphia, PA

TEACHING ASSISTANT

Fall 2018

- Graded lab assignments and mentored teams for final projects (59 students)
- Mentored teams for final projects

Mentoring

Raymond Yang, UPenn Undergraduate Student

Spring 2020

Noah Tatman, UPenn Undergraduate Student

Summer 2019

Jasmine Liu, Math, Science, and Technology Community Charter School High School Student

Summer 2019

Fangzhou Yu, Stonybrook Undergraduate Student

Summer 2019

Benjamin Jacob, UPenn Undergraduate Student

Summer 2018

Outreach

ESE Senior Design Demo Day

UPenn, Philadelphia, PA

Judge

April 10, 2020

Rachleff Scholars Graduate School Q&A

UPenn, Philadelphia, PA

Panelist

September 12, 2019

ESE Senior Design Demo Day

UPenn, Philadelphia, PA

Judge

April 17, 2019

Girls in Engineering and Related Sciences (GEARS) Day

UPenn, Philadelphia, PA

Closing Speaker

October 13, 2018

USA Science & Engineering Festival

Washington, D.C.

Demonstrator

April 5-8, 2018

Women in Coding

USC, Los Angeles, CA

Panelist

July 10, 2015

Publications

O'Kelly, M., Zheng, H., Jain, A., Auckley, J., **Luong, K.**, & Mangharam, R. "TUNERCAR: A Superoptimization Toolchain for Autonomous Racing." 2020 International Conference on Robotics and Automation (ICRA).

Gonzales, O. D., **Luong, K.**, Homma, H., & Eliasson, V. (2016). "Experimental investigation of dynamic fracture initiation in PMMA submerged in water." Journal of Dynamic Behavior of Materials, 2(3), 391-398.

Presentations

International Federation of Automatic Control (IFAC)

Berlin, Germany - Virtual

Co-Chair of F1/10 Autonomous Grand Prix - Race Day

July 16, 2020

Society of Experimental Mechanics Conference

Costa Mesa, CA

Effects of Solid-Fluid Interaction on Crack Propagation of PMMA

June 11, 2015

USC Undergraduate Research Symposium

Los Angeles, CA

Study of Vinyl-Ester Resin Under Dynamic Loading Conditions

April 16, 2014

Ivy Plus Symposium

Cambridge, MA

Humidity Level Variation and Soaking of PMMA Under Dynamic Loading

March 14, 2014

Honors & Awards

- 2019 **ESE Best Doctoral Citizen Award**
- 2015 **USC Women in Science & Engineering Research Grant**
- 2013 **USC Undergraduate Research Associates Program**
- 2013 **USC McNair Summer Research Fellow**
- 2011 **Gates Millennium Scholar**
- 2011 **Quest Scholar**

Skills

- Software** C, MATLAB, Python, FreeRTOS, C++, ROS, \LaTeX
- Electrical** AVR and ARM Microcontrollers, PCB Design, Altium, Eagle
- Mechanical** Solidworks, 3D Printing, CNC Machining, Geometric Dimensioning & Tolerance
- Language** English, Vietnamese, Spanish

Interests

Professional: autonomous vehicles, mechatronics, circuit board design, STEM education

Personal: artisan bread making, ashtanga yoga