

# Oscar Leong

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## Education

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### Rice University

*PhD. Candidate, Computational and Applied Mathematics*

Advisor: Dr. Paul Hand

- o Passed PhD qualifying exams: May 2017

**Houston, TX**

*August 2016 - Est. June 2021*

### Swarthmore College

*Bachelor of Arts, Mathematics*

**Swarthmore, PA**

*August 2012 - May 2016*

### Budapest Semesters in Mathematics

*Study Abroad Program*

- o Erdős number: 3

**Budapest, Hungary**

*Spring 2015*

## Research Interests

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- o Deep Learning
- o Phase Retrieval
- o Compressed Sensing
- o Computer Vision
- o Signal Recovery

## Research Experience

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### Rice University

*Graduate Research Assistant*

Computational and Applied Mathematics

- o Current research focuses on studying the theoretical properties of enforcing a neural-net based generative prior in the phase retrieval problem.

**Houston, TX**

*July 2017 - Present*

### Mathematical Sciences Research Institute

*Undergraduate Research Assistant*

Geometric Combinatorics

- o Adapted a volume argument previously used to prove Sperner's Lemma and modified it to prove another geometric combinatorial result known as Tucker's Lemma. **Published in *Contemporary Mathematics*.**

**Berkeley, CA**

*July 2015 - August 2015*

### Swarthmore College

*Undergraduate Research Assistant*

Graph Theory

- o Analyzed the ranks of the adjacency matrices of particular families of graphs over the field  $\mathbb{Z}_2$ .

**Swarthmore, PA**

*June 2014 - August 2014*

## Teaching Experience

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### CAAM 210: Introduction to Engineering Computation

Teaching Assistant

Rice University, Department of Computational and Applied Mathematics

Houston, TX

August 2017 - Present

### Tapia Camps: Computer Science

Lead Instructor

Richard Tapia Center for Excellence & Equity

- o Lead instructor of computer science curriculum for underrepresented minority students with a dual language (english/spanish) component and an emphasis on the communication of scientific ideas.
- o Worked with 8 undergraduate instructors, 80+ high school students, and 40+ high school teachers.

Houston, TX

July 2017

### Math 15: Single Variable Calculus

Teaching Assistant

Swarthmore College, Department of Mathematics

Swarthmore, PA

August 2013 - December 2013

### South Central Scholars Summer Academy

Teaching Assistant

University of Southern California

- o Taught single variable calculus and mentored underrepresented minority students to prepare them for a college level learning environment.
- o [Link to LA Times story featuring short bio of myself and the Summer Academy](#)

Los Angeles, CA

June 2013 - August 2013

## Publications

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- o B. Kulture, **O. Leong**, C. Loa, M. Sondjaja, F. E. Su, *Proving Tucker's Lemma with a Volume Argument*, in Proceedings of the AMS Special Session on Algebraic and Geometric Methods in Discrete Mathematics, Contemporary Mathematics, American Mathematical Society.

## Presentations

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- o *Helly's Theorem and its Generalization to the Union of Convex Sets*
  - Presentation: Swarthmore Senior Showcase 2016, Swarthmore, PA
  - Poster: Swarthmore Sigma Xi 2016, Swarthmore, PA
- o *Proving Tucker's Lemma with a Volume Argument*
  - Poster: Joint Mathematics Meetings 2016, Seattle, WA
  - Presentation: Young Mathematicians Conference 2015, Columbus, Ohio
  - Poster: SACNAS Conference 2015, Washington, DC
- o *Ranks of Graphs in  $\mathbb{Z}_2$* 
  - Presentation: Joint Mathematics Meetings 2015, San Antonio, TX
  - Poster: SACNAS Conference 2014, Los Angeles, CA\*

## Honors and Awards

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- o Brinkmann Prize for Outstanding Mathematical Paper 2016
- o \*SACNAS: Best Undergraduate Poster Presentation in Mathematics 2014
- o Cedar SoCal Scholar 2012-2016
- o Philip Evans Scholar 2012-2016
- o Hispanic Heritage Youth Awards: Gold Medal in Mathematics & Engineering 2012