

# Brian M. Longo, Ph.D.

## Curriculum Vitae

October, 29, 2016

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### Contact Information:

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**Address** University of California, San Diego  
Department of Mathematics  
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**Website:** <http://math.ucsd.edu/~blongo>

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### Education:

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**Ph.D. Mathematics** University of California San Diego  
June 10, 2016

*Thesis title: “‘Super-approximation’ for absolutely almost simple groups over the rational function field  $\mathbb{F}_p(t)$ ”*

*Advised by Professor Alireza Salehi Golsefidy.*

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**C.Phil. Mathematics** University of California San Diego  
March 21, 2015

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**M.A. Mathematics** University of California San Diego  
June 13, 2014

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**B.A. Mathematics** University of California Santa Cruz  
June 12, 2011

*Graduated Summa Cum Laude with highest honors in the major.*

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### Research Interests:

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#### Expansion in linear groups

*I currently study expansion properties and “super-approximation” in linear algebraic groups defined over positive characteristic rational function fields and related applications.*

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**Previous Employment:**

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**Department of Mathematics – Visiting Lecturer**                      **University of California San Diego**

September 2016 – March, 2017

*Instructor of record for Math 10A – Differential Calculus, and Math 3C – Precalculus at UC San Diego.*

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**Department of Mathematics – Research Assistant**                      **University of California San Diego**

June – September, 2014; January – April, 2016;  
and June – September, 2016

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**Associate Instructor / Lecturer of Mathematics**                      **University of California San Diego**

September, 2015 – January, 2016

*Lectured an undergraduate course in multivariable calculus of two hundred students. Designed a full curriculum for the course as well as homework assignments and exams. Trained a team of inexperienced teaching assistants, who held small weekly classes to supplement the course. Student submitted teaching evaluations for this course are available upon request.*

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**Department of Mathematics – Teaching Assistant**                      **University of California San Diego**

September, 2011 – June, 2015

*Acted as the teaching assistant for various undergraduate and graduate level courses at the University of California, San Diego. Duties included: holding weekly classes and review sessions to supplement the main lecture, grading exams and weekly homework assignments, holding regular office hours to enrich learning and increase student participation, providing students with extracurricular material to pique interest in mathematics. Courses include:*

- *every course in a standard college level calculus sequence,*
  - *introductory and advanced linear algebra,*
  - *ordinary differential equations,*
  - *introductory logic and proof writing,*
  - *introductory and graduate level group theory.*
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**Modified Supplemental Instructor (MSI)**                      **Learning Support Services – University of California Santa Cruz**

September, 2009 – June, 2011

*Held small supplemental precalculus classes at the University of California, Santa Cruz for students who were at high risk of failing the class based on academic history and placement exam scores. Served on a team to remodel the way precalculus is taught at UCSC to better fit the “flipped*

classroom” teaching style. Also helped test and provide feedback for the ALEKS online precalculus learning system.

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**Awards:**

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**July 2015: Research Supported by NSF grant 1502651.**

“RTG: Research Training Group in Algebra, Algebraic Geometry, and Number Theory” under Principle Investigator Elham Izadi and co-Principle Investigators Efim Zelmanov, James McKernan, Christian Popescu, and Kiran Kedlaya

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**June 2014: Research Supported by NSF grant 1303121.**

“Discrete subgroups of semisimple Lie groups” with Principle Investigator Alireza Salehi Golsefidy

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**June 2014: Research Supported by NSF grant 1303121.**

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**September 2012: GANN Fellowship Nominee.**

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**2011-2012: James B. Ax Fellow.**

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**Invited Research Talks:**

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**Grad SWANTAG**  
March 6, 2016

**University of California San Diego**

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**Algebra Seminar**  
December 7, 2015

**Indiana University Bloomington**

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**Algebra Seminar**  
November 2, 2015

**University of California San Diego**

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**Advancement to Candidacy**  
Winter, 2015

**University of California San Diego**

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**AWM Undergraduate Mathematics Day**  
Spring, 2014

**University of California San Diego**

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**Service:**

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**Undergraduate Research Mentor**  
October, 2015 – January, 2016

**University of California San Diego**

*Mentored a group of exceptional undergraduate students in a small research project related to “super-approximation” and expander graphs.*

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**Conference and Workshops:**

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**AMS-MAA Joint Mathematics Meetings**  
January, 2016

**Seattle Washington**

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**Advances in Homogeneous Dynamics**  
May 11 – 15, 2015

**Berkeley, CA**

*MSRI*

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**Zariski-dense subgroups**  
February 9 – 13, 2015

**Los Angeles, CA**

*IPAM*

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**Geometric and Arithmetic Aspects of Homogeneous Dynamics**  
February 2 – 6, 2015

**Berkeley, CA**

*MSRI*

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**RTG Workshop on Thin Groups**  
April 25 – 27, 2013

**University of Michigan Ann Arbor**

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