ARUN DEBRAY
CURRICULUM VITÆ

Department of Mathematics, RLM 8.100
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Education.

Ph.D.: in Mathematics, in progress, The University of Texas at Austin — expected 2020
B.S.: in Mathematics with Honors, Stanford University, GPA 3.828 — June 2015
Thesis: "Modular Representation Theory and the CDE Triangle," advised by Akshay Venkatesh.

Teaching Experience.

At UT Austin:

Supplemental Instruction (SI) Teaching Assistant: Taught in a "flipped classroom," teaching sections, holding office hours, and participating in the Sanger Learning Center SI Program.

- Math 408N: Differential Calculus for Science — Fall 2016
- Math 408L: Integral Calculus — Fall 2017
- Math 408N: Differential Calculus for Science — Fall 2018

Directed Reading Program:
Mentored undergraduates on projects including lattice-based cryptography, point-set topology, and symplectic geometry. — 2016–2018

At Stanford:

50 Series Tutor:
Tutored linear algebra, multivariable calculus, and differential equations. — 2013–2015

Other Experience.

- Software Engineering Internship, Dropbox — June–August 2015
- Research Internship, AT&T Foundry — June–September 2014
- Computer Science Undergraduate Research Internship (CURIS), Stanford University — June–September 2013

Service.

Homotopy theory learning seminar:
Co-organized a learning seminar on the Adams-Novikov spectral sequence. — Fall 2018

Gromov-Witten theory seminar:
Co-organized a learning seminar on Gromov-Witten theory. — Spring 2018

Quantum topology and categorification seminar:
Co-organized a learning seminar on Chern-Simons theory, the Jones polynomial, and Khovanov homology. — Spring 2017

Student geometry seminar:
Organized and ran UT Austin's graduate student geometry seminar. Fall 2016, Fall 2017

UT Math Club:
Spoke at UT Austin's undergraduate math club on SET and maximal caps; cohomology; and Frobenius algebras and TQFTs. Fall 2015, Spring 2016, Fall 2016

A-Star Math Tournament:
Head proctor and co-organizer. 2015

Berkeley Math Tournament:
Proctor and grader. 2012, 2015

Stanford Math Tournament:
Head proctor, proctor, and problem writer. 2012, 2013, 2014

American Regions Math League (ARML):
Coached the SFBA A2 team. 2012

Honors, Awards, and Fellowships.

Geometry Research and Training Grant (RTG) Fellowship:
Department of Mathematics, UT Austin Spring 2017

Prelim Excellence Award:
Department of Mathematics, UT Austin Fall 2016

Geometry Research and Training Grant (RTG) Fellowship:
Department of Mathematics, UT Austin Fall 2015–Summer 2016

Boothe Prize for Excellence in First-Year Writing:
Stanford University 2012

Talks.

- "The low-energy TQFT of the generalized double semion model," Conference on Higher Algebra and Mathematical Physics, Perimeter Institute, August 2018
- "The low-energy TQFT of the generalized double semion model," Contributed talk, Texas Analysis and Mathematical Physics Symposium, November 2017
- "Lattice Models and TQFTs," AT&T Foundry Palo Alto weekly seminar series, January 2017

Conferences Attended.

- Graduate Student Topology and Geometry Conference, University of Indiana April 2016
- Conference on invertible objects and duality in derived algebraic geometry and homotopy theory, University of Regensburg April 2017
- Texas Algebraic Geometry Symposium, Rice University April 2017
- Strongly Correlated Topological Phases of Matter, Stony Brook June 2017
- Homotopy Theory: tools and applications, UIUC July 2017
- Topological and Geometric Methods in QFT, Montana State University August 2017
- Texas Analysis and Mathematical Physics Symposium, UT Austin November 2017
- Texas Geometry and Topology Conference, University of Houston February 2018
- Texas Algebraic Geometry Symposium, Texas A&M University April 2018
- The topology and geometry of low-dimensional manifolds: a celebration of the mathematics of Bob Gompf, UT Austin July 2018
- Conference on Higher Algebra and Mathematical Physics, Perimeter Institute August 2018

Publications.

(1) (with Sam Gunningham) "The Arf-Brown TQFT of Pin$^-$ Surfaces." In *Topology and Quantum Theory in Interaction*, Contemp. Math. volume 617, pp. 49–87. (arXiv:1803.11183).