

Daniel P. Keliher

Contact Information	Tufts University Department of Mathematics Bromfield-Pearson Hall 503 Boston Avenue Medford, MA 02155	Email: daniel.keliher@tufts.edu Phone: (215) 776-3889
Interests	I am primarily interested in number theory and arithmetic statistics . I am also interested in algebraic geometry, data analysis, and computational genomics.	
Education	Tufts University, Medford, MA Ph.D program in Mathematics Advisor: Robert Lemke Oliver	September 2017 - Present
	Brown University, Providence, RI Sc.B in Mathematics	September 2013 - May 2017
Math Research Items	8. <i>Statistics on quartic extensions of function fields</i> (working title, in preparation) 7. <i>Comparing the density of D_4 and S_4 quartic extensions of number fields</i> . Joint with M. Friedrichsen. (ArXiv, submitted)	
Computational Research	6. Daniel Nava Rodrigues, Pasquale Rescigno, David Liu, et. al. <i>Immunogenomic analyses associate immunological alterations with mismatch repair defects in prostate cancer</i> . Journal of Clinical Investigation. 2018. 5. Diana Miao, Claire A. Margolis, Natalie I. Vokes, et. al. <i>Genomic correlates of response to immune checkpoint blockade in microsatellite-stable solid tumors</i> . Nature Genetics 9, 1271. 2018. 4. David Liu, Philip Abbosh, Daniel Keliher, et. al. <i>Mutational patterns in chemotherapy resistant muscle-invasive bladder cancer</i> . Nature Communications 8 (1), 2193. 2017. 3. David Liu, Philip Abbosh, Daniel Keliher, et al. <i>Subclonal mutational heterogeneity and survival in cisplatin-resistant muscle-invasive bladder cancer</i> . Journal of Clinical Oncology 2017 35:15_suppl, 4512-4512. 2. David Liu, Daniel Keliher, Philip Abbosh, et al. <i>Analysis of matched pre and post cisplatin-treated muscle-invasive bladder cancer reveals a candidate cisplatin mutational signature</i> [abstract]. In: Proceedings of the American Association for Cancer Research Annual Meeting 2017; 2017 Apr 1-5; Washington, DC. Philadelphia (PA): AACR; Cancer Res 2017;77(13 Suppl):Abstract nr 2918. 1. Diana Miao, David Liu, Daniel Keliher, et al. <i>Meta-analysis of genomic predictors of response to immune checkpoint therapy in metastatic melanoma</i> [abstract]. In: Proceedings of the American Association for Cancer Research Annual Meeting 2017; 2017 Apr 1-5; Washington, DC. Philadelphia (PA): AACR; Cancer Res 2017;77(13 Suppl):Abstract nr 571.	

Talks & Presentations	<ul style="list-style-type: none"> • <i>Comparing the number of D_4 and S_4 quartic extensions of function fields</i>, Maine-Québec Number Theory Conference, UMaine (October 2019) • <i>Comparing the number of D_4 and S_4 extensions of global fields</i>, Graduate Student Conference in Algebra, Geometry, and Topology at Temple U. (May 2019) • <i>Comparing the number of D_4 and S_4 extensions of a number field</i>, Palmetto Number Theory Series. (December 2018) • Tufts University Math Graduate Student Seminar (3 Talks) <ul style="list-style-type: none"> – <i>Function Field Arithmetic (and some stats)</i> (October 2019) – <i>Some Results in Arithmetic Statistics</i> (October 2018) – <i>A Primer on Topological Data Analysis</i> (March 2018) • <i>Mutational Signatures in Primary and Metastatic Prostate Cancer</i>, DFCI Van Allen Lab. (August 2016) • <i>An Introduction to the Topology of Data</i>, DFCI Van Allen Lab. (July 2016)
Teaching Experience	<div> <div>Teaching Assistant/Instructor</div> <div>September 2017 - Present</div> </div> <p>Tufts University Department of Mathematics</p> <ul style="list-style-type: none"> • Fall 2019, Spring 2019: Discrete Math (TA) • Summer 2019: Intro to Calculus (Instructor of Record) • Fall 2018: Calculus I (Recitation Instructor) • Summer 2018: SAT Math Course (Instructor of Record) • Spring 2018: Abstract Algebra II (TA) • Fall 2017: Abstract Algebra I (TA) <div> <div>Undergraduate TA Experience</div> <div>September 2014 - May 2017</div> </div> <p>Brown University Department of Mathematics</p> <ul style="list-style-type: none"> • Spring 2017: Honors Linear Algebra • Fall 2015: Mathematical Cryptography • Fall 2014: Calculus II for Physics/Engineering
Employment	<div> <div>Researcher</div> <div>Summers, 2014 - 2016</div> </div> <p>Dana-Farber Cancer Institute, Boston, MA</p> <ul style="list-style-type: none"> • Research related to algorithms and mathematical methods for detecting mutational signatures • Developed RNASeq deconvolution algorithms <div> <div>Visiting Undergraduate</div> <div>Summers, 2014-2016</div> </div> <p>The Broad Institute of MIT and Harvard, Cambridge, MA</p> <ul style="list-style-type: none"> • I held a concurrent appointment at the Broad Institute while working at DFCI in the Garraway and Van Allen Laboratories. <div> <div>Data Science Intern</div> <div>Summer 2013</div> </div> <p>Audax Health (now Rally Health), Washington, DC</p> <ul style="list-style-type: none"> • Created prediction models to recommend content to users
Computer Skills	R, Python, L ^A T _E X, Mathematica, Sage, Magma

Conference Participation

- CMI-HIMR Summer School in Computational Number Theory (U. Bristol, May 2019)
- PIMS Workshop on Arithmetic Topology (UBC, May 2019)
- Graduate Student Conference in Algebra, Geometry, and Topology* (Temple, May 2019)
- Upstate New York Number Theory Conference (Cornell, April 2019)
- Arizona Winter School (U. Arizona, March 2019)
- Palmetto Number Theory Series XXXI* (U. South Carolina, December 2018)
- Québec-Maine Number Theory Conference (U. Laval, October 2018)
- 2018 Chicago Summer Workshop: The roots of topology: miracles of algebraic geometry, braids and Hilbert's (still open) 13th problem (UChicago, June 2018)
- Connecticut Summer School in Number Theory/Arithmetic Geometry and Number Theory Conference (UConn, June 2018)
- 32nd Automorphic Forms Workshop (Tufts, March 2018)
- Maine-Québec Number Theory Conference (UMaine, October 2017)

(Denotes I gave a talk)*

Service

- Co-Organizer, Tufts Math Dept. Directed Reading Program, Fall 2019-present
- Organizer, Tufts Graduate Student Seminar, Spring 2018-present
- Tufts University Organization for Graduate Students in Mathematics (OGSM)
 - First-Year Representative, 2017-2018
 - Second-Year Representative, 2018-2019
- Camp Kesem at Brown University:
 - General Body member, AY 2015-2016
 - Treasurer, AY 2016-2017
 - Counselor, Summers 2016-2019