

CONTACT INFORMATION	University of California, Davis ↗ One Shields Ave – MSB 2149 Davis, CA 95616	mtsuruga@math.ucdavis.edu ↗ http://matsguru.com ↗
ACADEMIC POSITIONS	University of California, Davis ↗ 'Arthur J. Krener' Assistant Professor, Department of Mathematics ↗	September 2015–present
RESEARCH INTERESTS	Computational Topology: applications of topology in big data analysis, construction of complicated triangulations, topological combinatorics, sphere recognition algorithms, persistence homology, low-dimensional topology & geometry	
EDUCATION	Technische Universität Berlin ↗ , Germany Ph.D., Mathematics ↗	July 2015
	<ul style="list-style-type: none"> • Dissertation: <i>Constructing complicated spheres</i> ↗ • Supervisors: Priv.-Doz. Dr. Frank H. Lutz ↗, Prof. John M. Sullivan ↗. • BMS Mentor: Prof. Dr. Günter M. Ziegler ↗. 	
	Hunter College of the City University of New York ↗ B.A./M.A., Mathematics ↗	June 2008
PAPERS	[1] Brian Green, Nicholas Scoville and Mimi Tsuruga. Estimating the discrete Lusternik–Schnirelmann category. <i>Topological Methods in Nonlinear Analysis</i> , 45(1):103–116, 2015.	
EXTENDED ABSTRACTS	[2] Michael Joswig, Frank H. Lutz and Mimi Tsuruga. Heuristics for sphere recognition ↗ . In: <i>Mathematical Software - ICMS 2014, 4th Internat. Conf.</i> , Seoul, 2014 (H. Hong and C. Yap, eds.). <i>Lecture Notes in Computer Science</i> 8592, 152–159. Springer-Verlag, Berlin, 2014. Extended abstract.	
	[3] Mimi Tsuruga and Frank H. Lutz. Constructing complicated spheres ↗ . In: <i>EuroCG 2013</i> , 29–32 (2013). Extended abstract.	
INVITED TALKS	<ul style="list-style-type: none"> • April 2017: AMS Sectional Meeting AMS Special Session on Recent Advances in Applied Algebraic Topology ↗, Washington State University, Pullman, WA. <i>Topology of Data: A special topic</i> • October 2016: BADMath Day ↗, UC Davis, Davis, CA. <i>Complex (simplicial) complexes</i> • February 2016: Claremont Center for the Mathematical Sciences Colloquium Series, Pomona College, CA. <i>Complicated triangulations and breast cancer research</i> • January 2016: JMM 2016 AMS Special Session on Applied and Computational Topology, Seattle, WA. <i>Classification of breast cancer subtypes using signaling pathways and persistent homology</i> • October 2015: SACNAS 2015 Session on “Computational Topology and Topological Data Analysis”, Washington, DC. <i>Complicated triangulations and breast cancer research</i> • February 2015: Homology: Theoretical and Computational Aspects Workshop, Università degli Studi di Genova, Genoa, Italy. <i>HTCA: polymake and Random_Discrete_Morse tutorial</i> 	

- SUBMITTED TALKS
- March 2015: Third ERC “SD Models” Workshop, FU Berlin, Germany.
Sphere recognition: Heuristics and examples
 - January 2014: 2014 Joint Mathematics Meetings [↗](#), Baltimore, MD.
Constructing complicated spheres
 - July 2013: Applied Topology [↗](#), Bedlewo, Poland.
Constructing complicated spheres
 - March 2013: EuroCG 2013 [↗](#), Braunschweig, Germany.
Constructing complicated spheres
 - February 2013: BMS Student Conference 2013, Berlin, Germany.
Constructing complicated spheres
 - November 2012: KolKom 2012 [↗](#), Berlin, Germany.
Constructing complicated spheres as test examples for homology algorithms
 - October 2007: Wolfram Technology Conference 2007, Champaign, IL.
szgMathematica
 - August 2007: MathFest 2007, San Jose, CA.
Visualizing vortices: Vorticity in Navier–Stokes flow
 - October 2006: Wolfram Technology Conference, Champaign, IL.
Sakubo: A Mathematica–Syzygy affair
 - August 2006: MathFest 2006, Knoxville, TN.
Sakubo: A Mathematica–Syzygy affair

- SEMINAR TALKS
- February 2017: Student Statistics Seminar, UC Davis, CA.
 - February 2016: Topology seminar, Pomona College, CA.
 - January 2015: Topological Combinatorics Oberseminar [↗](#), FU Berlin, Germany.
 - January 2014: Rabadan Lab group meeting, Columbia University, NY.
 - January 2014: Topology/Geometry seminar, Rutgers University, NJ.
 - September 2013: Discrete Mathematics/Geometry seminar, FU Berlin, Germany.
 - February 2013: ETAM 2013 [↗](#), Catania, Italy.
 - May 2010: Seminar zur Geometrieverarbeitung, FU Berlin, Germany.
 - April 2010: “What is ...?” seminar, Berlin, Germany.
 - November 2007: Sigma Xi Seminar, Hunter College, NY.
 - August 2007: Wolfram Research Tech Talk, Champaign, IL.
 - April 2007: NSF Scholarship for Math & CS Seminar, Hunter College, NY.
 - October 2006: NSF Scholarship for Math & CS Seminar, Hunter College, NY.

- CONFERENCE POSTERS
- October 2015: Modern Math Workshop, Washington, DC.
 - February 2015: BMS Student Conference, TU Berlin, Germany.
 - November 2014: Discrete, Computational and Algebraic Topology, University of Copenhagen, Denmark.
 - April 2007: Sigma Xi Northeast Poster Conference 2007, Cornell University, NY.

TEACHING
EXPERIENCE

University of California, Davis [↗](#), Davis, CA
'Arthur J. Krener' Assistant Professor

- **MAT 280: Topology of Data** [↗](#) Fall 2016
 - Graduate-level special topics course.
 - Designed course content, advised 5 group projects.
- **MAT 021C, Sections A01–A06: Calculus (Partial Derivatives)** [↗](#) Fall 2016
 - Approximately 270 registered students. Supervised 3 TAs.
- **MAT 021C, Sections E01–E07: Calculus (Partial Derivatives)** [↗](#) Spring 2016
 - Approximately 220 registered students. Supervised 4 TAs.
- **MAT 016B, Section 004: Short Calculus** [↗](#) Winter 2017
 - Approximately 180 registered students. Supervised 2 TAs.
- **MAT 199/299: Independent Study** Spring 2016
 - Reading about topological data analysis, persistent homology.
 - 2 PhD and 1 undergraduate students.
 - Supervising small projects using single cell data from John Albeck (MCB, UC Davis)

Hunter College of the City University of New York [↗](#), New York, NY
Adjunct Lecturer

- **Calculus and Analytic Geometry I** 2008, 2010
 - Lectured, prepared notes, wrote and graded all exams and quizzes for stand-alone summer intensive courses.
 - Programmed various visualizations in Mathematica for classroom enhancement.

The Soroban School [↗](#), New York, NY
Teaching Assistant

1999–2008

- Achieved Expert Level (3rd Dan) in use of a modern Japanese abacus. Awarded 2nd place in US National Soroban Competition 1998, 1999.
- Assisted in weekly abacus class of approx. 10 students 4–12 years old.
- Co-hosted annual fall Soroban School Competition.

SOFTWARE
DEVELOPMENT

Polymake
Contributor, 2013–2015.

Mathematica
Beta tester (v6.0) 2006–2008, (v11) 2016–2017.

RESEARCH &
DEVELOPMENT

Wolfram Research, Inc. [↗](#), Champaign, IL
Summer Internship

2007

- Advisor: Ulises Cervantes-Pimentel
- Wrote a Syzygy application porting Mathematica to the CUBE at the Beckman Institute in UIUC.
- Collaborated with developers and professors at WRI, ISL, NCSA, and UIUC.
- Ran multiple tours at the CUBE for Wolfram staff.

University of Illinois at Urbana-Champaign [↗](#), Champaign, IL
Research Experience for Undergraduates [↗](#)

2006

- Advisor: Professor George K. Francis [↗](#)
- Associated Mentors: Ulises Cervantes-Pimentel (Wolfram Research, Inc. [↗](#)), Stuart Levy and Camille Goudeseune [↗](#) (NCSA [↗](#)).
- Designed interactive animations of homotopies including a collapse of Zeeman's duncehat, the Romboy homotopy, and Trott's soccer ball in Mathematica and Sakubo in the CUBE at the Beckman Institute.

ACADEMIC &
COMMUNITY
SERVICE

[“What is ...?” Seminar Series](#)

Organizing Committee Chair for weekly student seminar, 2009-2015.

Committee for the Reapplication for DFG Exzellenzinitiativ Funding

Student Representative and Editor, Berlin Mathematical School, 2010-2011.

Berlin Mathematical School

Student Representative. 2009, 2010.

Hoshuko Alumni Association, Inc.

Founder & President of 501(c)3 organization. New York, NY. 2003-2008.

Pi Mu Epsilon

President, Hunter College. 2006-2008.

Grade Appeal Committee, Dept. of Mathematics

Student Representative, Hunter College. 2007.

Provost Search Committee

BA/MA Student Representative, Hunter College. 2006-2007.

AWARDS &
SCHOLARSHIPS

[Berlin Mathematical School](#)

- Phase II Scholarship, 2010-2015.
- Phase I Scholarship, 2008-2010.

[Hunter College of the City University of New York](#)

- David & Sadie Klau Foundation Fellowship Award, 2008-2009.
- Scholarship & Welfare Fund of the Alumni Association of Hunter College, 2008.
- Hunter College Peluso Fund Scholarship, 2008
- Philip & Aida Siff Education Scholarship, 2007-2008.
- NSF Scholarship Program in Mathematics and Computer Science, 2006-2007.

MEMBERSHIPS

Berlin Mathematical School, *Member*, 2008-2015.

Pi Mu Epsilon (National Math Honor Society), NY Beta Chapter, *Member*, 2006-present.

Sigma Xi (National Science Honor Society), *Member*, 2007-2008.

Hunter Achievement Team, *Member*, 2006-2008.

Hunter Honors Scholars Program, *Member*, 2001-2002.

OTHER WORK
EXPERIENCE

Manhattan Mansions L.P. New York, NY

Legal Secretary

2003-2007

- Certified Notary Public in the County of New York.
- Assisted owner with the operation and management of several Manhattan residential apartments.
- Prepared, proofread and filed court documents for corporate securities litigator.
- Supported executor of estate; prepared financial reports for tax filing.

Guilford Publications New York, NY

Asst Acquisitions Editor

2001-2002

Fulfillment Assistant

1998-2001

- Supported editors by contacting authors, coordinating meetings, running sales reports, and conducting marketing research and surveys; prepared manuscripts for editing and production; acquired permissions.
- Provided technical support to customers for software products; instituted filing system for proof of deliveries for large book distributors; created procedures guide to train future assistants.

CITIZENSHIPS

USA, Japan

REFERENCES
AVAILABLE TO
CONTACT

- **Dan Romik** [✉](#)
Professor and Chair of Department of Mathematics at UC Davis
romik@math.ucdavis.edu [✉](#)
One Shields Ave, Davis, CA 95616
- **John M. Sullivan** [✉](#)
Professor at Technische Universität Berlin [✉](#)
Deputy Chair of Berlin Mathematical School [✉](#)
(Doctoral Supervisor)
sullivan@math.tu-berlin.de [✉](#)
TU Berlin, MA 8-1, Straße des 17.Juni 136, 10623 Berlin, Germany.
Note: Currently on sabbatical; Visiting Professor at UC Davis.
- **Frank H. Lutz** [✉](#)
Privatdozent at Technische Universität Berlin [✉](#)
(Doctoral Advisor)
lutz@math.tu-berlin.de [✉](#)
TU Berlin, MA 5-2, Straße des 17.Juni 136, 10623 Berlin, Germany.
- **Nadja Wiesniewski** [✉](#)
Director of Administration for FakII at Technische Universität Berlin [✉](#)
Former Director of the Berlin Mathematical School [✉](#)
wiesniewski@math.tu-berlin.de [✉](#)
TU Berlin, Fakultätsverwaltung, Sekr. BEL 1, Marchstr. 6, 10587 Berlin, Germany.
+49 30 314 23759 (Germany)
- **Robert C. Susser**
Attorney, President of Manhattan Mansions, L.P.
susserlaw@yahoo.com [✉](#)
270 Madison Ave, Suite 1500, New York, NY 10016
+1 (212) 808-0298