

Nikola Milicevic

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EDUCATION	University of Florida , Gainesville, Florida, USA	
	▪ Ph.D. in Mathematics	Aug 2016 – May 2021 (Expected)
	• Adviser: Dr. Peter Bubenik	
	University of Florida , Gainesville, Florida, USA	
	▪ M.S. in Mathematics	Aug 2018
	University of Florida , Gainesville, Florida, USA	
	▪ B.S. in Mathematics, minor in Physics (Cum Laude)	Aug 2012 – May 2016
RESEARCH INTERESTS	Current Interests include:	
	▪ Topological Data Analysis and applications to biology	
	▪ Algebraic topology, commutative algebra, category theory	
	▪ Machine learning	
HONORS & AWARDS	▪ Grinter Fellowship for Graduate Students, University of Florida Annual stipend	Aug 2016–May 2020
	▪ United World College Davis Scholar at the University of Florida Tuition and stipend	Aug 2012–May 2016
	▪ In the Honors Program at the University of Florida	Aug 2012–May 2016
	▪ Dean’s List, Fall 2012, Fall 2013, Spring 2015, Fall 2015, Spring 2016, University of Florida For attaining a semester GPA of at least 3.75.	
	▪ Abel Math National Competition in Norway, 6th place	Mar 2012
	▪ Bronze medal at the 12th Junior Mathematical Balkan Olympiad (held in Albania)	Jun 2008
	▪ 1st place in the National Mathematical Competition in Mathematics in Montenegro In the category for 8th grade students	2008
	▪ 2nd place in the National Mathematical Competition in Mathematics in Montenegro In the category for 7th grade students	2007
PAPERS	▪ with Peter Bubenik, <i>Homological Algebra for Persistence Modules</i> , under review JoFoCM, submitted 10/28/2019, https://arxiv.org/abs/1905.05744	
	▪ <i>Convolution of Persistence Modules</i> , preprint available at https://arxiv.org/abs/2010.02020	
	▪ with Peter Bubenik, Parker Edwards, Kristen Skruber and Eric Vitriol, <i>Topological data analysis of actin networks</i> , in preparation	
	▪ with Peter Bubenik, <i>Foundations of algebraic pretopology</i> , in preparation	
TALKS	▪ Applied Topology in Albany (ATiA) seminar: Convolution of Persistence Modules	Oct 2020
	▪ University of Florida Hipergator Symposium: Topological Data Analysis of Actin Networks	Oct 2020
	▪ 45th Annual New York Regional Graduate Mathematics Conference: Algebraic pretopology	Mar 2020
	▪ AMS Southeast Sectional Meeting, University of Florida: Homological Algebra of Persistence Modules	Nov 2019
	▪ Topology and Dynamics Seminar, University of Florida: Discrete and indiscrete algebraic pretopology	Oct 2019
	▪ Graduate Topological Data Analysis and Machine Learning Conference, Ohio State University: Topological Data Analysis of Actin Networks	Jun 2019

- Topology and Dynamics Seminar, University of Florida:
Homology and Homotopy Theories of Čech Closure Spaces Apr 2019
- Graduate Student Topology Seminar, University of Florida:
Verdier Duality Feb 2019
- UF/FSU Topology and Geometry meeting, Florida State University:
Homological Algebra of Persistence Modules Feb 2019
- Graduate Student Topology Seminar, University of Florida:
Sheaf Theory and Persistence Oct 2018
- Topology and Dynamics Seminar, University of Florida:
A Convenient Category of Persistence Modules Feb 2018
- Graduate Student Topology Seminar, University of Florida:
Magnitude Homology Feb 2018
- Graduate Student Topology Seminar, University of Florida:
A Kunneth type formula for persistence modules Nov 2017
- Graduate Mathematics Association Colloquium, University of Florida:
Persistence Modules Oct 2017
- UF Informatics Institute Student Data Analysis Seminar, University of Florida:
Introduction to TDA Sep 2017
- Topological Data Analysis Seminar, University of Florida:
Singular Value Decomposition Jan 2017

**CONFERENCES
AND WORKSHOPS
ATTENDED**

Workshops:

- Workshop on Topological Data Analysis, Fields Institute, held virtually Jun 2020
- UF Topological Data Analysis Workshop, University of Florida Jan 2020
- ICERM Workshop: “Applied Mathematical Modeling with Topological Techniques”,
Brown University Aug 2019
- TGDA@OSU TRIPODS Center Workshop: “Structure in the Micro-World”
Presented a poster May 2019
- Data Science and Informatics Symposium, University of Florida:
Presented a poster Mar 2019
- IMA Workshop: “Tutorial on Multiparameter Persistence, Computation, and Applications”,
Minneapolis MN Aug 2018
- BIRS-CMO Workshop: “Multiparameter Persistent Homology”, Oaxaca Mexico
Presented a poster Aug 2018
- TGDA@OSU TRIPODS Center Summer School, Ohio State University
Presented a poster May 2018
- IMA Workshop: “Bridging Statistics and Sheaves”, Minneapolis MN
Presented a poster May 2018

Conferences:

- South-East Center for Mathematics and Biology Annual Symposium, Georgia Tech
Presented a poster Feb 2020
- 62nd Texas Geometry and Topology Conference, Texas A&M University Nov 2019
- Geometric Data Analysis, University of Chicago
Presented a poster May 2019
- South-East Center for Mathematics and Biology Annual Symposium, Georgia Tech
Presented a poster Jan 2019
- FSU/UF Topology and Dynamics meeting, University of Florida Feb 2017

MENTORING

I have mentored undergraduate students in Peter Bubenik’s research group:

- David Freeman Aug 2019–Aug 2020
 - Analysis of microscopic cell images using relative persistent homology induced by quotient and shortest path metrics

- Gianfranco Cortes Aug 2019–May 2020
 - Training a support vector regression model to distinguish between types of singularities in algebraic varieties

TEACHING

University of Florida

- Besides my regular teaching assignments for undergraduate courses, I have been asked by faculty to substitute for them and teach advanced graduate courses in the math department. These include:
 - Algebraic topology in Fall 2018, Spring 2019, Fall 2020, Spring 2020
 - Homological algebra in Spring 2020
- Calculus III, Instructor May 2020–Aug 2020
- Calculus III and Survey of Calculus II, Teaching Assistant Jan 2020–Apr 2020
- Trigonometry, Instructor Aug 2019–Dec 2019
- Calculus III, Teaching Assistant Jan 2018–May 2018
- Calculus I, Teaching Assistant Aug 2017–Dec 2017
- Calculus I, Instructor May 2017–Aug 2017
- Calculus I, Teaching Assistant Jan 2017–May 2017
- Precalculus with Trigonometry, Teaching Assistant Aug 2016–Dec 2016

ORGANIZING ACTIVITIES

- University of Florida, Topological Data Analysis Discussion Group Aug 2020–Present
 - <https://people.clas.ufl.edu/nikola/topological-data-analysis-discussion-group>

PROFESSIONAL AFFILIATIONS & ACTIVITIES

- Member, American Mathematical Society 2016–Present
- Reviewer, Journal of Computation and Applied Topology Dec 2019–Present

COMMUNITY SERVICE

- Volunteer for the Math Circle at the University of Florida presenting math games and puzzles for grade school children. Jan 2020–Feb 2020
- Facilitator in the Julia Roberts Math Festival at the University of Florida, presenting math games and puzzles for grade school children. Sep 2019
- Gave computer training to first year graduate mathematics students Aug 2019
- Gave a Latex Introduction seminar for graduate mathematics students at the University of Florida Apr 2019
- Webmaster for the graduate math association at the University of Florida Jan 2019–Dec 2019

CODING EXPERIENCE

- Experience with coding in R and Python
- Familiarity with algorithms in TDA
- Experience in using University of Florida supercomputer, HiPerGator