

Jisu KIM (김지수, 金志洙)

1 Contact

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2 Education

- Carnegie Mellon University, Pittsburgh, United States of America
 - (Current) Ph.D., Statistics & Machine Learning (joint program) [Sep 2013 - (expected) 2018]
Advisor: Larry Wasserman and Alessandro Rinaldo
 - M.S., Statistics [Sep 2013 - Aug 2014]
- Seoul National University, Seoul, Republic of Korea
 - B.S., Mathematics, Computer Science(double major), Statistics(double major) [Mar 2006 - Aug 2013]
Graduated Summa Cum Laude (first honors in College of Natural Science)
- Seoul Science High School, Seoul, Republic of Korea

3 Papers

Eddie Aamari, Jisu Kim, Frédéric Chazal, Bertrand Michel, Alessandro Rinaldo, Larry Wasserman, Estimating the Reach of a Manifold [2017] [arXiv | HAL | BibTeX]

Kijung Shin, Bryan Hooi, Jisu Kim, Christos Faloutsos, DenseAlert: Incremental Dense-Subtensor Detection in Tensor Streams [2017]

Kijung Shin, Bryan Hooi, Jisu Kim, Christos Faloutsos, D-Cube: Dense-Block Detection in Terabyte-Scale Tensors [2017] [paper | appendix | BibTeX]

Jisu Kim, Yen-Chi Chen, Sivaraman Balakrishnan, Alessandro Rinaldo, Larry Wasserman, Statistical Inference for Cluster Trees [2017] [arXiv | NIPS | BibTeX]

Jisu Kim, Alessandro Rinaldo, Larry Wasserman, Minimax Rates for Estimating the Dimension of a Manifold [2016] [arXiv]

Brittany Terese Fasy, Jisu Kim, Fabrizio Lecci, Clément Maria, Introduction to the R package TDA. [2014] [arXiv | BibTeX]

4 Talks

Statistical inference on persistent homology of density filtration on Rips complex, Topological Methods in Brain Network Analysis, Banff (Canada) [2017-05-08] [[slide](#) | [video](#)]

R Package TDA for Statistical Inference on Topological Data Analysis, Topological Methods in Brain Network Analysis, Banff (Canada) [2017-05-08] [[slide](#) | [tutorial](#) | [code](#) | [video](#)]

Statistical Inference on Topological Data Analysis, AMS Special Session on Statistical Methods in Computational Topology and Applications in 2017 Joint Mathematics Meetings, Atlanta (USA) [2017-01-04] [[slides](#) | [abstract](#)]

R Package TDA for Statistical Inference on Topological Data Analysis, 5th Mini Symposium on Computational Topology in The 32nd International Symposium on Computational Geometry, Boston (USA) [2016-06-16] [[slides](#) | [abstract](#)]

Minimax Rate for Estimating the Dimension of a Manifold, Special Session on Topological Data Analysis: Computations, Statistics, and Applications in AMS Fall Eastern Sectional Meeting, New Brunswick (USA), [2015-11-14] [[slides](#) | [abstract](#)]

Minimax Rate for Dimension Estimator, The 60th ISI World Statistics Congress, Rio de Janeiro (Brazil) [2015-07-27] [[slides](#)]

Tutorial on the R Package TDA, The 4th Annual Minisymposium on Computational Topology in The 31st International Symposium on Computational Geometry, Eindhoven (Netherlands) [2015-06-23] [[slides](#) | [tutorial](#) | [code](#)]

Minimax Rate for Estimating the Dimension of a Manifold, TopData in Inria Geometrica, Paris (France) [2015-05-28] [[slides](#)]

5 Poster

Estimating the Reach of a Manifold, UC Davis RTG Statistical Sciences Symposium: Geometry, Statistics and Data Analysis, Davis (USA) [2017-05-19] [[poster](#)]

R Package TDA: Statistical Tools for Topological Data Analysis, ASA Pittsburgh Chapter Spring Banquet, Pittsburgh (USA) [2017-04-04] [[poster](#)]

Statistical Inference for Cluster Trees, Advances in Neural Information Processing Systems 29 (NIPS 2016), Barcelona (Spain) [2016-12-06] [[poster](#)]

Minimax Reach Estimator, Topology, Geometry, and Data Analysis Conference at OSU, Columbus (USA) [2016-05-16]

6 Software

R package TDA: Statistical Tools for Topological Data Analysis

- Authors: Brittany Terese Fasy, Jisu Kim, Fabrizio Lecci, Clément Maria, Vincent Rouvreau
- [[CRAN](#) | [Reference Manual](#) | [Vignettes](#)]

7 Teaching

- Carnegie Mellon University, Pittsburgh, United States of America
 - Statistical Machine Learning TA [Spring 2017, Spring 2016, Spring 2015]
 - Advanced Statistical Theory I TA [Fall 2016]
 - Introduction to Statistical Inference TA [Summer 2016]
 - Intermediate Statistics TA [Fall 2015, Fall 2014]
 - Advanced Methods for Data Analysis TA [Spring 2014]
 - Probability and Mathematical Statistics 1 TA [Fall 2013]
- Seoul National University, Seoul, Republic of Korea
 - Basic calculus 2 tutor [Fall 2012, Fall 2008]
 - Basic calculus 1 tutor [Spring 2012, Spring 2008]

8 Experience

- Visited Inria Geometrica, in Paris, France [Summer 2015]
 - advised by Frédéric Chazal and Bertrand Michel
- Undergraduate Research Internship Program [Winter 2012]
 - advised by Yongdai Kim
- Undergraduate Research Internship Program [Summer 2012, Winter 2011]
 - advised by Seonhee Lim
- Sergeant of Republic of Korea Army (specialty : Computer technician) [Sep 2009 - Jul 2011]
- Analyzer at Business department, Allm [Jan 2009 - Jun 2009]

9 Awards and Honors

Samsung Scholarship (for Doctoral degree) [2013 - (expected)2018]

TA of the Year Award, by Department of Statistics [2017]

Student of the year for 2017, by the American Statistical Association Pittsburgh Chapter [2017]

α TA Award, by Machine Learning Department, Carnegie Mellon University [2016]

National Presidential Science Scholarship (for undergraduate) by Korean Student Aid Foundation [2006 - 2012]

1st prize, The 30th University Students Contests of Mathematics, by Korean Math Society [2011]

2nd place, ACM-ICPC Asia-Daejeon Regional 2011 [2011]

2nd prize, The 27th University Students Contests of Mathematics, by Korean Math Society [2008]

Gold prize, 19th Korean Mathematical Olympiad, by Korean Math Society [2005]

Graduated first honors in College of Natural Sciences [Autumn 2013]

Dean's list [Fall 2012, Spring 2012, Fall 2011]

Annual Honor Reward [2008, 2007]

10 Language

Natural language : Korean(native), English

Computer language : C++, R, Matlab, C, Ocaml, LATEX, Python, Scheme, SAS, Java, Fortran