

MSCS Mess

Department of Mathematics, Statistics, and Computer Science
St. Olaf College, Northfield, MN 55057

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<http://wp.stolaf.edu/mscs/mscs-mess/>

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MSCS Colloquium

Title:	Measuring the Shape of Data with Topology
Speaker:	Lori Ziegelmeier
Date:	Monday, February 22
Time:	3:30- 4:30 pm
Location:	RNS 310

About the talk: Data of various kinds is being collected at an enormous rate, and in many different forms. Often, the data is equipped with a notion of distance that reflects similarity in some sense. Using this distance measure, certain topological features--e.g. the number of connected components, loops, and trapped volumes--can be ascertained and provide insight into the structure of these complex data sets. In this talk, I will introduce a fundamental tool of topological data analysis, namely persistent homology. Then, we will explore examples of using this tool in the applications of (1) detecting chemical plumes in hyperspectral movies and (2) developing a new representation of this topological information.

Math REU Opportunity

A new Research Experience for Undergraduates (REU) focusing on high-performance computing and big data is being planned for this summer at South Dakota State University. The application deadline is March 31. For more information, see: <http://www.sdstate.edu/me/reu/>

Many other REUs are now accepting applications for summer 2016, though application deadlines are quickly approaching! To discover REUs that might interest you, check out the following lists:

http://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=5044

<http://www.ams.org/programs/students/emp-reu>
<https://sites.google.com/site/mathreuprograms/>

MSCS Mini-Colloquium

Title:	What is Probability?
Speaker:	Bob Eisinger '11, PhD statistics student at the University of Illinois
Date:	Monday, February 22
Time:	3:30- 4:30 pm (goodies at 3:15)
Location:	RNS 190

About the talk: We all encounter probabilities in our daily lives, but few of us think carefully about what it means for an event to have a certain probability. In this talk, I will discuss the basic concepts of probability, including conditional probability and Bayes' Theorem. I will also demonstrate the practical importance of probability using an illustration of the famous Monty Hall problem. *Cookies and Conversation before colloquium.*

If you would like to submit an article or event to be published in the MSCS Mess, e-mail khan@stolaf.edu
If you wish to receive a digital copy of the MSCS Mess every Friday, e-mail martinep@stolaf.edu or check it out online

Mathematics Education in Budapest!

Budapest Semesters in Mathematics Education (BSME) is a semester-long program in Budapest, Hungary, designed for those interested in teaching middle or high school mathematics. BSME is specifically intended for students who are not only passionate about mathematics, but also the *teaching* of mathematics.

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For more details, see bsmeducation.com or contact Ryota Matsuura (matsuura@stolaf.edu). **Act now, since the application deadline for semester/ year off-**

campus study in 2016-17 is Monday, February 29.

From the Editor

Some nifty proof techniques:

- Proof by vigorous hand-waving: works well in a classroom or seminar setting.
- Proof by intimidation: "Trivial."
- Proof by adverb: "As is quite clear, the elementary aforementioned statement is obviously valid."
- Proof by obfuscation: a long and plot-less sequence of true and/or meaningless syntactically related statements.
- Proof by cosmology: "The negation of the proposition is unimaginable or meaningless."
- Proof by wishful citation: the author cites the negation, converse or generalization of a theorem from the literature to support their claims.

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