

# MSCS MESS

Department of Mathematics, Statistics, and Computer Science  
St. Olaf College, Northfield, MN 55057  
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## Next Friday's Research Seminar

Title: Barcodes: Discerning the  
Shape of Data  
Speaker: Matthew Wright  
Time: Friday, November 4, 3:30pm  
Place: RNS 204

**About the talk:** In recent years, the mathematical field of topology has been applied to the analysis of complex data. Persistent homology is one of the most popular and well-studied tools in topological data analysis. Persistent homology associates with complex data easily-visualized algebraic objects called barcodes, which provide information about the structure of the data. Persistent homology has been applied to data arising from computer graphics, biology, neuroscience, signal processing, and more. I will give an introduction to persistent homology, explaining what it is, what it can do, and how it is computed. This talk is the first of a two-part series; the second talk on November 11 will focus on a current project to develop software for computing a specific type of persistent homology.

**About the speaker:** Matthew Wright understands the difference between topology and topography, and he appreciates both. He completed his Ph.D. in mathematics at the University of Pennsylvania, was a Postdoctoral Fellow for two years at the Institute for Mathematics and its Applications, and is now a Visiting Assistant Professor at St. Olaf College. In his 32 years, he has visited 32 US states and 12 other countries.

## Next Monday's Colloquium

Title: Computer Science  
Summer Research Talks  
Speaker: Student Researchers  
Time: Monday, October 31, 3:30pm  
Place: RNS 310

**About the talk:** What is summer research like in Computer Science? Six CS majors from last summer's team at St. Olaf will be presenting their projects this week, ranging from analyzing the terminology used in medical articles, to using Raspberry Pis for teaching parallel computing, to helping deaf people learn how to hear.

### **About the speakers:**

**Jesus Caballero '18** has special expertise in working with computer hardware. The Raspberry Pi systems he built over the summer have already been used to introduce students at other colleges to parallel computing.

**Eric Oseid '17** is a cluster manager for CS-managed computing equipment. He took on the challenging task of porting educational visualization software to the Raspberry Pi, among many projects during the summer.

**Luke Zimmermann '18** was able to pursue his interests in graphics programming in his project to update the graphics in CS 251.

**Justin Pacholec '18** is a manager in the HiPerCiC initiative, which creates custom web apps for professors and others. He works with Prof. Loebach (Psychology) on software for cochlear implant recipients.

**Lucas Heilman '19** became a summer researcher in CS just after his first year. He

worked with Prof. Epstein (Music) on teaching Music History through the HiPerCiC Quiz Game.

**Joe Peterson '18** learned cluster management, collaborated on a new version of WebMapReduce, and performed textual analysis of gigabytes of medical articles for Prof. Crisp (Neuroscience) during Summer 2016.

### MSCS T-Shirt design contest

Calling all creative math lovers! The MSCS department is looking to create yet another cool math-related t-shirt, but we need

your help! We are looking for creative t-shirt designs that relate to mathematics. Please submit your radical t-shirt designs to Miranda Tilton (tiltonm@stolaf.edu) by Monday, November 14th 2016, for the chance to win a free t-shirt and free pause pizza!

### In the next issue...

It might seem difficult to believe, but it's about time to start thinking about summer plans! Check next week's issue for an early taste of research opportunities and MSCS-related internships for your perusal.

*To submit an article or event for publication in the Mess, email [brooke@stolaf.edu](mailto:brooke@stolaf.edu); to receive the Mess digitally each Friday, email [freking@stolaf.edu](mailto:freking@stolaf.edu); visit <http://wp.stolaf.edu/mscs/mscs-mess/> for a digital archive of previous MSCS Mess issues.*

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