

# 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 Research Seminar

<b>Title:</b>	Estimating Temporal Associations in Electrocardiographic (ECoG) Time Series
<b>Speaker:</b>	Haley Hedlin
<b>Date:</b>	Monday, March 14
<b>Time:</b>	3:30- 4:30 pm
<b>Location:</b>	RNS 310

**About the talk:** Granger causality (GC) is a statistical technique used to estimate temporal associations in multivariate time series. Many applications and extensions have been proposed since its formulation by Granger in 1969. Here we apply Granger causality in the context of electrocardiography (ECoG), also known as intracranial electroencephalography. A pruning approach to remove spurious connections and simultaneously reduce the required number of estimations to fit the functional connectivity graph is proposed. This approach overcomes limitations encountered when estimating many parameters in multivariate time series data, an increasingly common predicament in today's brain mapping studies.

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## Celebrating Pi Day

Pi Mu Epsilon and math club is hosting a delicious celebration of Pi Day in the Cliff Lounge (3rd floor of RMS) on Monday, 3/14. Come join us in eating pie and sharing our irrational love for Pi, from 10:00-10:40 am!

## Pi Mu Epsilon Spring Talk

<b>Title:</b>	Matrix Factorizations and Singularities of Hypersurfaces Time Series
<b>Speaker:</b>	Kosmas Diveris
<b>Date:</b>	Wednesday, March 16
<b>Time:</b>	4:00-5:00 pm
<b>Location:</b>	RNS 208

**About the talk:** Algebraic geometers study geometric objects defined by polynomial equations, like the unit sphere in  $\mathbb{R}^3$  which is defined by  $x^2+y^2+z^2=1$ . A lot of interesting geometry is encoded in algebraic properties of these polynomials. In this talk we will discuss what factoring of polynomials can tell us about geometric objects, and explain how one can “factor” irreducible polynomials using matrices. These matrix factorizations, introduced by David Eisenbud in 1980, play a central role in the study of singularities of hypersurfaces and are an active area of research today. Shamrock shakes and conversation at 3:45 pm before the talk!

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## Linux Ladies Discussion

Do you think that the STEM gender gap is an important feminist issue? Also, do you like free pizza? If you answered yes, then join the Linux Ladies in their first interdisciplinary discussion pizza party of the year! The Linux Ladies will be hosting an evening discussion on Tuesday, March 15, at 6pm in RNS 356A to discuss the

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gender gap in STEM fields. We'll be giving a short presentation and then opening the meeting up for group discussion. You don't want to miss this fun conversation about things that matter. See you there!

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## Summer Job Opportunity

MathILy is an intensive residential summer program for mathematically excellent secondary students. And they are hiring undergraduates with various levels of expertise in math. There are three types of positions for which they regularly have openings. These are:

- Protector and Responder in the {MathILy, MathILy-Er} Environment (PRiME)
- Apprentice Instructor (AI)
- Lead Instructor (LI)

For more information on the positions, visit:

<http://www.mathily.org/staffpos.html>

Applications received before April 25th, 2016 will receive full consideration. After that point, applications will be considered only if you ask nicely *and* if they have any space left. Apply here: <http://www.mathily.org/app.html>.

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## Distinction in Mathematics for Senior Math Majors

Applications and references are due by Friday, April 22. There are three minimal criteria:

- 3.6 GPA in mathematics
- At least three level III math courses
- A distinctive project such as a research project

Applications can be picked up in RMS 307.

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## Register for the GRE

Junior and Senior math majors can still sign up for the GRE (early deadline today March 11 - late deadline next Friday, March 18). The exam is on Saturday, April 16. Also, these same students should keep an eye on their email for an opportunity to do a GRE review after Spring break. Register here:

<https://www.ets.org/gre/subject/register/centers/dates/>

## From the Editor

The shortest math joke:

Let  $\epsilon < 0$ .

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