

# MSCS



# Mess

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

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## This Week's Colloquium

Title: **Parallelism 101: From bits to petabytes, how parallel computing has and will soon change your thinking**

Speaker: Dick Brown  
St. Olaf College

Date: Tuesday, November 10<sup>th</sup>

Time: 1:30pm

Location: RNS 210

**About the talk:** In computing, *parallelism* is the use of multiple computer actions at the same time. Computer designers have used parallelism behind the scenes since the early days in order to speed computers up. Nowadays, all computer users have seen and used parallelism for years, whether they realize it or not. Recent changes in computer design mean that the software we use daily must soon be rewritten to use parallelism in new and essential ways. This affects what CS students now need to learn; it also means an explosion of new opportunities for everyone in MSCS disciplines. In this talk (no prerequisites!), we will explore computer parallelism and its past, present, and coming role in how we think about the problems we solve.

**About the speaker:** Dick Brown has been at St. Olaf for almost 20 years, most of the time until last summer as Director of Computer Science (CS). During that time, he invented or

reinvented over half of our CS courses, and originally proposed and developed our CS major. Over the last four years, he has directed students in St. Olaf's Beowulf cluster project, which has now grown to include dozens of students and three clusters, with a fourth coming to our new world-class cluster room RMS 201B next summer. Dick will be on leave in the Spring to develop materials for teaching parallelism. In his spare time, he has been seen annually as an actor on the local community theater stage, and likes to dance. Most recently, he tangoed as a tail-coated Dracula figure with three sleek women in a Halloween *Dance Macabre* program; but he typically uses a different style when teaching.

## Internship Opportunities Thrivent Financial

**Thrivent Financial in Minneapolis** has opened a new posting for a full-time actuarial position. They are also still taking application for the actuarial intern position that was posted a few weeks ago.

To find the descriptions and applications, go to <http://www.thrivent.com/careers/> and click on 'Search Corporate Job Openings'. You can apply directly from the job description. **The deadline for both applications is December 4th.**

### Breakthrough Saint Paul

*"I love the feeling you get after a class in which you have really taught the kids something. The sense of satisfaction that is brought by knowing you have touched a child's life is one words cannot describe." - Angela, Breakthrough Teacher*

**Breakthrough Saint Paul** is looking for a diverse group of talented undergraduate and high school students (juniors/seniors) to teach and lead at an innovative academic summer program for high-potential, under-resourced middle school students in Saint Paul.

Breakthrough provides **paid summer internships**, complete with training and classroom teaching experience.

#### Open to all majors!

This internship was ranked as one of the **TOP TEN SUMMER INTERNSHIPS FOR COLLEGE STUDENTS** by the Princeton Review.

**Please check [visit our website](http://www.breakthroughsaintpaul.org/teachers_become.html) for more details!**

[http://www.breakthroughsaintpaul.org/teachers\\_become.html](http://www.breakthroughsaintpaul.org/teachers_become.html)

**Application Deadline: March 1st, 2010**

### Words from Hungary

(The BSM St. Olaf Chronicles)

**This week, Sarah Spragues'11 wrote:**

One night, which was as nighty as most nights go, although perhaps rather chilly as has been happening recently, I was driven to abstraction by the abstractness of my topology homework. Separating myself from it as far as possible, I floated around in my own personal mental space, contemplating my frustration and seeking its source. In the annals of my mind, I chanced upon the explanation I was pursuing in an ancient story.

Imagine a cave. In this cave, there is a line of prisoners, chained in such a way that they can only look forward. Behind this line of prisoners, there is a walkway, along which walk puppeteers, carrying puppets. Behind the walkway is a fire. The puppets cast shadows on the blank wall, and this is all the prisoners see, and since it is all they have ever seen,

it is all they know. The shadows on the wall comprise their entire reality.

As Socrates explains to Glaucon in Plato's Republic, a prisoner who was allowed to see the puppets themselves would not be able to accept them. They are incomprehensible, being outside of the "reality" the prisoner is accustomed to. It does not fit into what they know of the world; it resembles something, but it is also vastly different. Better yet, should a prisoner be taken out of the cave, and chance upon the outside world, how overwhelmed he would be! Three Dimensions? Light coming from the sky? Objects and light being distinct from one another, and not inseparable? Inconceivable!

Theorizing beyond the visible world (represented by the cave) but rather with pure Form (represented by the puppets) is, as Plato tells us through Socrates, overwhelming. But is this not what Mathematics tries to do? In order that we may hit upon Truth, we must generalize:  $x$  is not just any number, it is the *idea* of a number. It could be any number, if it is a number at all.  $U$  is not a set, but the *idea* of a set. Any set we can name in some way, or write down, is merely an example.

Perhaps this pursuit of pure Form is as noble as Plato makes it out to be. But sometimes I think it could be nice to sit in a cave. It is warm and dry. And there's a puppet show.

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*If you would like to submit an article or math event to be published in the Math Mess, e-mail [sotirov@stolaf.edu](mailto:sotirov@stolaf.edu).*