

MSCS Mess

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

25 April 2014
Vol. 42, No. 18

This Week's Colloquium

Title:	Evaluating Node Orderings for Application Placement in High-Performance Computing Systems
Speaker:	Carl Albing
Date:	Monday, April 28
Time:	3:30 pm
Location:	RNS 410

About the talk: Supercomputers, massively parallel high-performance computing (HPC) systems, consist of tens of thousands of processors, interconnected by a topologically non-trivial network, such as a 3D (or higher-dimension) torus. We begin with a description of modern HPC systems, their phenomenal scale, and their uses. We then examine the research that resulted in increasing HPC performance through application placement using allocation strategies based on an ordered, one-dimensional sequence of nodes. This presentation describes the approach of node ordering and describes several orderings. A method is presented for the static evaluation of node orderings and this is used to compare various orderings. Results provide visually compelling guidance on the choice of node ordering. A real-world case puts this method of evaluation to the test and provides a surprising result.

About the speaker: Dr. Carl Albing writes software for some of the biggest and fastest computers in the world. A software engineer for Cray Inc., Carl is also the coauthor of two books, "Java application development on Linux" and the O'Reilly "bash Cookbook", and the author of the O'Reilly video "Great bash". During his career he has worked for large companies and small startups, across a variety of software industries. Carl is a St. Olaf graduate ('77) with a B.A. in Mathematics who pioneered the use of Unix

at St. Olaf. Dr. Albing received his Ph.D. in Computer Science from the University of Reading, England in 2012.

This Week's Seminar

Title:	Cluster Tilted Algebras
Speaker:	Viviana Gubitosi, University of the Republic, Uruguay
Date:	Friday, May 2
Time:	3:35 pm
Location:	RNS 204

About the talk: In this talk we are going to introduce the definition of quivers and path algebras. We are going to focus on a special case of a quotient of path algebras called Cluster tilted algebras. These algebras are intensively studied by several authors since its definition in 2006. In this talk we will see several examples and some properties of these algebras.

Game Night Extravaganza!

Help celebrate the MSCS department's massive game collection by joining us for a giant game night on the 6th floor of Regents Math. Also, come see our beautiful new games display case in action!

We'll have lots of games to play, plenty of pizza, Doritos, Oreos, and other snacks to eat. Drop by with your friends and family and even challenge a professor to a game of Settlers of Catan, Dominion, cribbage, Scrabble, or whatever else catches your eye.

Did we mention free pizza? The extravaganza will be held on Thursday, May 1 from 7 - 11pm on the 6th floor of RMS.

MSCS Senior Banquet

For all graduating MSCS majors and concentrators, mark your calendars! You are invited to the MSCS

Senior Banquet on Tuesday, May 13. It will be held in the Valhalla Room in Buntrock from 6:00 pm to 8:00 pm. Look out for an e-mail to RSVP to!

Bard College's MAT Program

Bard College is now accepting applications to their Masters of Arts in Teaching program. Students have access to financial aid opportunities, including tuition scholarships, loan-forgiveness programs, and a federal grant, awarded specifically to our program in LA, that provides students with up to \$30,000 in external funding when they commit to teaching for at least three years in a high-needs school district. They are accepting applications for the 2014-2015 school year through June 2. Applications and more information can be found at <http://www.bard.edu/mat/>.

NYTimes Article

The following is an article from the April 19, 2014 edition of the New York Times written by Thomas L. Friedman titled "How to Get a Job at Google, Part 2."

MOUNTAIN VIEW, Calif. How's my kid going to get a job? There are few questions I hear more often than that one. In February, I interviewed Laszlo Bock, who is in charge of all hiring at Google about 100 new hires a week to try to understand what an employer like Google was looking for and why it was increasingly ready to hire people with no college degrees. Bock's remarks generated a lot of reader response, particularly his point that prospective bosses today care less about what you know or where you learned it the Google machine knows everything now than what value you can create with what you know. With graduations approaching, I went back to Google to ask Bock to share his best advice for job-seekers anywhere, not just at Google. Here is a condensed version of our conversations:

You're not saying college education is worthless?

"My belief is not that one shouldn't go to college," said Bock. It is that among 18- to 22-year-olds or people returning to school years later "most don't put enough thought into why they're going, and what they want to get out of it." Of course, we want an informed citizenry, where everyone has a baseline of knowledge from which to build skills. That is a social good. But, he added, don't just go to college because you think it is the right thing to do and that any bachelor's degree will suffice. "The first and most important thing is to be explicit and willful in making the decisions about what you want to get out of this investment in your education." It's a huge investment of time, effort and money and people should

think "incredibly hard about what they're getting in return."

Once there, said Bock, make sure that you're getting out of it not only a broadening of your knowledge but skills that will be valued in today's workplace. Your college degree is not a proxy anymore for having the skills or traits to do any job.

What are those traits? One is grit, he said. Shuffling through résumés of some of Google's 100 hires that week, Bock explained: "I was on campus speaking to a student who was a computer science and math double major, who was thinking of shifting to an economics major because the computer science courses were too difficult. I told that student they are much better off being a B student in computer science than an A+ student in English because it signals a rigor in your thinking and a more challenging course load. That student will be one of our interns this summer."

Or, he added, think of this headline from The Wall Street Journal in 2011: "Students Pick Easier Majors Despite Less Pay." This was an article about a student who switched from electrical and computer engineering to a major in psychology. She said she just found the former too difficult and would focus instead on a career in public relations and human resources. "I think this student was making a mistake," said Bock, even if it meant lower grades. "She was moving out of a major where she would have been differentiated in the labor force" and "out of classes that would have made her better qualified for other jobs because of the training."

This is key for Bock because the first thing Google looks for "is general cognitive ability the ability to learn things and solve problems," he said. In that vein, "a knowledge set that will be invaluable is the ability to understand and apply information so, basic computer science skills. I'm not saying you have to be some terrific coder, but to just understand how [these] things work you have to be able to think in a formal and logical and structured way." But that kind of thinking doesn't have to come from a computer science degree. "I took statistics at business school, and it was transformative for my career. Analytical training gives you a skill set that differentiates you from most people in the labor market."

A lot of work, he added, is no longer tied to location. "So if you want your job tied to where you are, you need to be: A) quite good at it; and B) you need to be very adaptable so that you have a baseline skill set that allows you to be a call center operator today and tomorrow be able to interpret MRI scans. To have built the skill set that allows you to do both things requires a baseline capability that's analyti-

cal.”

Well, what about creativity?

Bock: “Humans are by nature creative beings, but not by nature logical, structured-thinking beings. Those are skills you have to learn. One of the things that makes people more effective is if you can do both. ... If you’re great on both attributes, you’ll have a lot more options. If you have just one, that’s fine, too.” But a lot fewer people have this kind of structured thought process and creativity.

Are the liberal arts still important?

They are “phenomenally important,” he said, especially when you combine them with other disciplines. “Ten years ago behavioral economics was rarely referenced. But [then] you apply social science to economics and suddenly there’s this whole new field. I think a lot about how the most interesting things are happening at the intersection of two fields. To pursue that, you need expertise in both fields. You have to understand economics and psychology or statistics and physics [and] bring them together. You need some people who are holistic thinkers and have liberal arts backgrounds and some who are deep functional experts. Building that balance is hard, but that’s where you end up building great societies, great organizations.”

How do you write a good résumé?

“The key,” he said, “is to frame your strengths as: ‘I accomplished X, relative to Y, by doing Z.’ Most people would write a résumé like this: ‘Wrote editorials for The New York Times.’ Better would be to say: ‘Had 50 op-eds published compared to average of 6 by most op-ed [writers] as a result of providing deep insight into the following area for three years.’ Most people don’t put the right content on their résumés.”

What’s your best advice for job interviews?

“What you want to do is say: ‘Here’s the attribute I’m going to demonstrate; here’s the story demonstrating it; here’s how that story demonstrated that attribute.’ ” And here is how it can create value. “Most people in an interview don’t make explicit their thought process behind how or why they did something and, even if they are able to come up with a compelling story, they are unable to explain their thought process.”

For parents, new grads and those too long out of work, I hope some of this helps.

Editor-in-Chief:	Josh Jacobson
Faculty:	Marju Purin
Mess Czar:	Patty Martinez

If you would like to submit an article or event to be published in the Math Mess, e-mail jacobsoj@stolaf.edu