Department News

We have completed another eventful academic year as undergraduate enrollment continues to grow and the faculty evolves. **Arshia Khan**, who joined us in 2014 as a term faculty member, has moved to a tenure-track position. **Andrew Brooks**, a visiting professor since 2011, has moved to a permanent position in the Netherlands. **Gary Shute** will retire after 32 years at UMD (see article). With their leaving, we are in the midst of a faculty search for a software engineering specialist.

Department head **Hudson Turner** had a busy year guiding the department through another successful national accreditation cycle for the undergraduate B.S. program. First accredited by ABET in 1989, we have undergone the intense accreditation process every 6 years since then. We received valuable assistance this time from **Rich Maclin**, who has spent the last year as SCSE's associate dean. Rich will be re-joining the department for the coming year.

In news related to teaching, we expect to expand MWAH 187 over the summer into a networks and systems lab. In an effort to increase retention, **Jim Allert** has been overseeing changes to Computer Science I, including replacing TA-led discussion sections with an additional instructor-led lecture and optional Supplementary Instruction groups conducted in the UMD Tutoring Center by an upper-division student. Also, more "flipped classroom" innovations are being introduced into the course, as part of a college-wide initiative to include more

Faculty Spotlight

Gary Shute

When classes meet in the fall of 2016, it will be the first time in the history of the UMD Computer Science department that **Gary Shute** will not be in the classroom. After 32 years, Gary will be joining his wife, former ITSS director and CS department faculty member **Linda Deneen**, in retirement.

Gary is a computer science polymath in the truest sense, attracted to the discipline when it was still forming and open to thinkers of all stripes, including mathematicians, philosophers, programmers, and dabblers in electronics. Gary is all of these, a generalist who values a multi-disciplinary approach to learning and teaching.
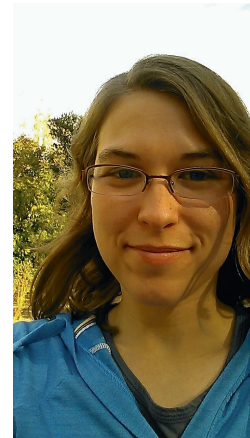
Alumni Spotlight

Michele Olsen

The path to a computer science career can have many origins, and for **Michele Olsen** (BS '09, MS '12) it began with a love of papercraft, electronics kits, and creating claymation videos. The second youngest of five siblings, Michele grew up in Wisconsin and found herself in accelerated programs for art and math students. She was encouraged to explore all of the sciences and arts, and "I loved every one of them," she recalls.

"I got interested in computers like everyone else -- I liked computer games, and especially the idea of computer animation," she remembers. Before landing at UMD, the only exposure she had to actual programming was the Logo turtle graphics drawing program, but it instilled in her a budding dream of doing 3D

FACULTY SPOTLIGHT CONT'D FROM P. 1

Over the years Gary has been called on to teach an astonishingly diverse set of courses: Introductory CS, Data Structures, Operating Systems, Networks, Software Engineering, Ethics, Object-Oriented Design, Computer Architecture, Machine Organization... It is difficult to imagine asking a new CS Ph.D. to teach all of these.

Gary did not just teach all these for the good of the department -- he relished them all, and made it a point to meticulously code and create all programming labs and assignments himself. Gary's teaching and coding skills have helped prepare many students for successful careers in business and industry over the years.

Gary was particularly adept at teaching data structures. One student, Dan Holmdahl (BS '96), says, "Gary's teaching of data structures is something I use very often. I recall clearly Gary saying `Today, we will talk about trees' -- one of the many topics Gary covered that remain with me to this day." Anand Jha (MS '14), a teaching assistant for Gary in data structures, remembers, "Dr. Shute was very helpful and polite. I was very impressed with the course projects and labs he designed, as they were particularly beneficial for understanding the difficult concepts."

Gary was also an accomplished teacher at the graduate level. Murthy Ganapathibhotla (MS '06) remembers taking advanced computer architecture from Gary, which set him on a career of his own teaching the topic in India. "Because I took the course from Prof. Shute, I knew how to gradually lead the students step by step." Rahul Bora (MS '96) took a graduate course from Gary. "His steady demeanor and ability to explain complex concepts stands out to me even today. My favorite memory of him was that on the finals exam paper, the total score count of his questions reached 95 and so at the end he wrote: `Write anything here for 5 points.' Those were the easiest 5 points scored in grad school."

Gary has long been a closet philosopher. For the last 12 years, he and Tim Colburn have collaborated on an original research project to firmly establish a philosophical foundation of computer science based on the experience of practitioners. Gary's insight and philosophical acumen have led to important publications on abstraction, metaphor, law, and types in computer science.

ALUMNI SPOTLIGHT CONT'D FROM P. 1

animation. Encouraged to attend a liberal arts school to broaden her career choices, she settled on UMD where she pursued an art major for two years while taking a computer science minor. However, "I realized I was more of an engineer than an artist," and switched to a CS major and art minor.

Like many women in CS, Michele initially lacked confidence. "When I took intro CS I felt like my peers were vastly ahead of me having done programming before college. I didn't feel like I was good enough." But she stuck with it and found her stride when she began to tie in animation and visuals in her projects.

An art professor pointed her to the Visual and Digital Imaging Lab (VizLab), where she was introduced to 3D modeling tools. This experience led to work with Pete Willemsen to build 3D models for a research grant with the Minnesota Department of Transportation. "I remember being very shy and intimidated to work in a lab of computer science graduate students," but again she persevered, and eventually presented the results of the study at a conference on visual perception and 3D user interfaces. During graduate school Michele had the opportunity to go back to working in the VizLab and created an interactive display for the Great Lakes Aquarium to educate the public about invasive species.

After getting her master's degree Michele worked at Saturn Systems in Duluth as a software engineer on a variety of projects using new languages and "learning how to jump into any sort of existing project no matter what technologies were used." After three years at Saturn, she joined Lone Wolf Development, a company that creates digital tools for the tabletop gaming industry.

Michele has become somewhat of a lone wolf herself, working mostly autonomously from her home in the Minneapolis area, coding in C++ and communicating with her team primarily via Skype with a cat lounging in her work area.

DEPT NEWS CONT'D FROM P. 1

active learning classroom strategies.

When **Peter Peterson** was at UCLA, the CS department there had a tradition called Tea Time, which Peter has now initiated at UMD. "Tea times are short, informal occasions for the whole department," Peter says. "Undergrads, graduates, faculty and staff can get together to chat, get to know each other, maybe talk about something technical, and importantly, have refreshments."
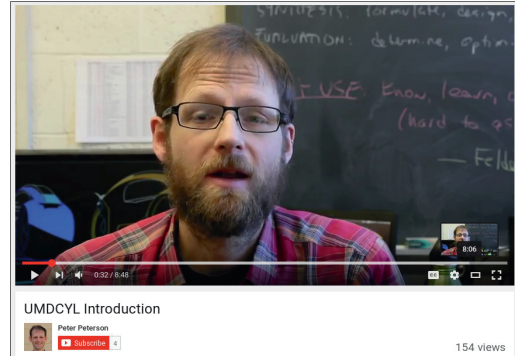

Peter conducted two popular Tea Time events in the spring, managing to inject technical content into both. In the first, he demonstrated a few "roguelikes" -- procedurally generated turn-based roleplaying videogames. In the second, he ran a game server that allowed players to connect and control battle tanks through a stack-based processor that required commands written in reverse Polish notation.

Peter was assisted by student **Jon Beaulieu**, who demo'd another AI programming game site, and **Lori Lucia**, who was instrumental in getting the food and logistics taken care of. "Lori made hosting Tea Time a snap," Peter reports.

Peter has also used his game server, developed by colleagues at UCLA, in an effort to reach out to the local community at large. With the help of a UMD Public Engagement Grant, Peter has created the UMD Cybergames Youth League, a group of local high schools whose students compete against each other and other schools with their program-controlled tanks. Peter created a Youtube channel to document the league, and he hosted an invitational contest in May attended by 30 students from 5 schools.

UMDCYL Introduction

Peter Peterson

154 views

Pete Willemsen helped engage the Duluth community during Astronomy Day in April. The event included planetarium shows, workshops, and a "Walk on Mars" virtual reality demonstration created by Pete's students.
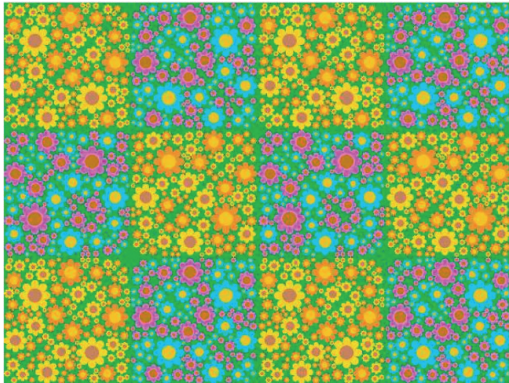

The inability of STEM fields to attract and retain women students is well known. Using her experience as a student, professor, and fund-raiser, **Arshia Khan** has started a group to encourage more women in computer science. Consisting of passionate students and other interested faculty, the group's goals are to obtain funding to offer scholarships and industry mentors for women students.

Collaborating with physicians, therapists, and faculty from other departments, Arshia has in the past year obtained funding for her research, IT in support of health care. One grant will fund research into offering a virtual support environment for patients recovering from open heart surgery. Another supports the use of accelerometers in mobile technology to prevent pressure ulcers (bed sores) in patients of limited mobility. Arshia's student collaborators on these projects, shown here, are **Janna Madden**, **Yichen Wei**, and **Nam Phung**.

At the end of October **Doug Dunham** was elected chair of SIGMAA-ARTS, the MAA (Mathematical Association of America) Special Interest Group in the arts, a group of over 300 MAA members who are also interested in the arts. He has served as interim chair for the past two years. Doug continues to present his work on computer-generated art at multiple international conferences, and to make images that look cool in newsletters, like this flower pattern with color symmetry and global p4mm symmetry:

FACULTY SPOTLIGHT CONT'D FROM P. 2

Gary does not plan to go gently into retirement's night. He and Tim plan to continue their research collaboration. Still passionate about programming, he plans to continue developing coding and presentation frameworks that he used for teaching and shares with others. If that weren't enough, he looks forward to having more time to compose music, a talent few of us knew he had, but which does not surprise us.

Gary was a rarity -- a Renaissance man for the 21st century. His impact on our department has been broad and pervasive, and he will be missed.

Donate

If you would like to help defray the cost of education for worthy students, please consider donating to the UMD Department of Computer Science Scholarship Fund. Just go to http://www.d.umn.edu/cs/gifts.html and click **Computer Science Giving Page**.

Bulldog Bytes is conceived, written, and produced by **Tim Colburn** (tcolburn@d.umn.edu) with assistance from **Clare Ford**.

ALUMNI SPOTLIGHT CONT'D FROM P. 2

"I have a hand in every part of the application; from communicating with customers, to custom script compilation, to UI issues on the iPad."

Michele's childhood interest in making things with her hands continues as she enjoys her free time painting models and playing table-top miniatures and board games. She even has a Youtube channel where she documents her projects (http://www.youtube.com/user/oasisrising), and she teaches classes on model painting at local stores.

Michele notes that the shortage of women in STEM fields even extends to the table-top gaming community. "Women tend to be harsher critics of their performance, which can lead to a lack of confidence," she thinks, resulting in women who perform as well as men dropping out when men show more confidence. She believes that women's confidence in STEM fields would improve if there were a few cultural changes. "Stop pointing out the women in the room and treating them as an anomaly. Stop trying to 'pinkify' topics, as it is condescending. Encourage women who are doing well and let them know they are doing well. If they are struggling, let them know other people are struggling too. This can help them feel less like it's their own inherent lack of ability."

Good advice, we think.

Alumni Spotlight
Matt Beaulieu

Matthew Beaulieu (BS '15) has followed a path that was once rare but is becoming more commonplace: a local son succeeds in computer science at UMD and stays to pursue a career in Duluth.

Home schooled through his middle school years, Matt attended Central high school where he lettered in three sports and received state awards in football. Before discovering a penchant for math and computing, "I would have to say that Shop was my favorite class, as I was free to work with my hands and create something," he remembers. (cont'd next page)

While in high school, Matt accumulated credits at Lake Superior College as a PSEO student and continued after graduation, eventually obtaining his AA degree while receiving the Dean's award for academic achievement.

Matt credits LSC teacher Zbigniew Wdowiak, a UMD math alum, with instilling a fondness for math, and he discovered that he enjoyed helping others when he became a registered peer tutor in the learning center. Uncertain about a career, "After much thought I decided to pursue computer science only because I liked computers and loved video games." So he enrolled at UMD.

Like many computer science students drawn to the field through video games, Matt had a rocky start. "The hardest CS course was definitely CS 2. I didn't think it would be that hard. I failed the first exam." Perhaps his football experience taught him to never give up. "I stuck with it and came out with an A at the end so I was pretty happy about that." Matt excelled in CS after that and also added math as a second major.

While at UMD Matt made the Dean's list several semesters and received the New Generation Scholarship from Minnesota Power. He particularly remembers a special topics math course in which he used his CS knowledge to manage a large amount of data involved in a police response time optimization project. "Our team ended up presenting in New York at a prestigious conference which was pretty cool." Matt says he really enjoyed his time at UMD. "I am very thankful for the investment on the part of the teachers and staff for helping me to succeed."

With a lot of friends and family in Duluth, and a longstanding active church life here, Matt was not eager to leave. Although the Twin Ports do not abound with CS career opportunities, Matt had no trouble getting local job offers, even without an internship. "Companies are looking for motivated individuals who are eager to learn and work hard," he says. Saturn Systems, a local software engineering firm, recognized this in Matt and hired him a day after his interview.

When the weather permits, Matt can be seen biking to work

downtown from his Woodland home. "Saturn has a company bike challenge so I can keep my bike in the office which is really nice." A typical week for him includes several team scrum meetings with managers and team leads. He has also gained experience gathering requirements from clients and translating them into tasks in the software life cycle. He figures he's had to get up to speed on 10 languages supporting web applications in his first year, including T-SQL, C#/.Net, X/HTML, Javascript, JS libraries, CSS, and Windows batch scripting.

Matt does not think of Saturn as a stepping stone in his career. "In ten years I can honestly see myself still working at Saturn. They are a great company and treat their employees well and I believe they have a very solid future ahead. I also love Duluth despite the cold and long winters."

In his abundant spare time, Matt likes to work on a mobile app of his own (content undisclosed), and he has found himself in the somewhat unlikely role of landlord. "When my grandmother passed away, I wanted to keep her house in the family, so I bought it and rented it out." He chuckles when he thinks about it. "I own a house, still live at home with my parents, and don't currently own a car."

Matt is unique by today's standards, not only in the way he lives day to day but in the peace and balance he finds in his personal life. He attributes this to his relationship with his creator. "I owe any honor and glory that have come from my successes in life to God." That debt will no doubt grow as time goes on.

Alumni News

Last summer **Ted Pedersen** attended a computational linguistics conference in Denver at which three former UMD graduate students were presenting papers. Pictured below with Ted are **Mahesh Joshi** (MS '06), **Saif Mohammad** (MS '03), and **Sid Patwardhan** (MS '03). All three went on for PhDs - Mahesh to CMU, Saif to Toronto, and Sid to Utah. Sid is at IBM/Watson, Saif is with the National Research Council of Canada, and Mahesh is at eBay.
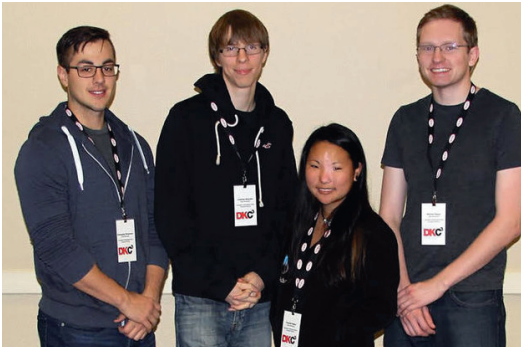
Undergraduate News

UMD Programmers Triumph Again

For the second year in a row, UMD students have taken the top prize at the DigiKey Collegiate Computing Competition. Thirty-four teams from 15 universities in Minnesota, North Dakota, South Dakota, and Wisconsin competed for the honor.

UMD's winning team, the Wylie Werevoles, was made up of **Aleksandar Straumann, Jonathan Beaulieu, Mitchell Rysavy**, and **Amanda Poston**. For earning first place, each student took home a $300 Amazon gift card, while the department received $5,000 and a bronze traveling trophy.

Mitch said the team spent a few nights a week during the month leading up to the competition to practice as a team. "This kind of event shows me just how much I owe to UMD," said Mitch. "The problems we were able to solve wouldn't have been possible without the education I've gotten here."

Amanda agrees, saying, "It was great to be able to use things we learned in class, and it was interesting to see how much we could accomplish working together as a team rather than as individuals."

Another UMD group did well at the competition, but didn't place. Team Coding Pho was made up of **Eric Christensen, Mazin Jindeel**, and **Scott Wolff**. The groups' advisor **Pete Willemsen** is very proud of both teams' efforts, observing that "The students had a good time with the competition experience and deserve recognition."

After the DigiKey win, Amanda was interviewed for a Duluth News Tribune article in which she was asked: You are hosting a dinner party and can invite any three people — alive or dead, famous or not. Who would you invite and why? Her answer, in true geek fashion: "Bill Gates from Microsoft, Steve Jobs from Apple and Linus Torvalds from Linux. I think the four of us could have some interesting conversations."

Undergraduate CS Major on a Path to NASA

Sophomore CS and EE double major **Kirsi Kuutti** has already completed more internships than most students undertake in their careers. Her first internship at NASA's Glenn Research Center began immediately after graduating from Duluth East high school, where she developed a passion for building devices and making systems work through the FIRST Robotics competition. After a year of college she landed another internship creating controllers for factory machinery at the Rockwell Automation Center in Cleveland.

Last summer Kirsi was into yet another internship at NASA Johnson Space Center when she received news that she had been accepted into the Pathways Program, a co-op program that is NASA's primary pipeline for full-time civil servants. The co-op arrangement will require a lot of traveling between Texas and Minnesota, but she is committed to finish her degree programs at UMD.
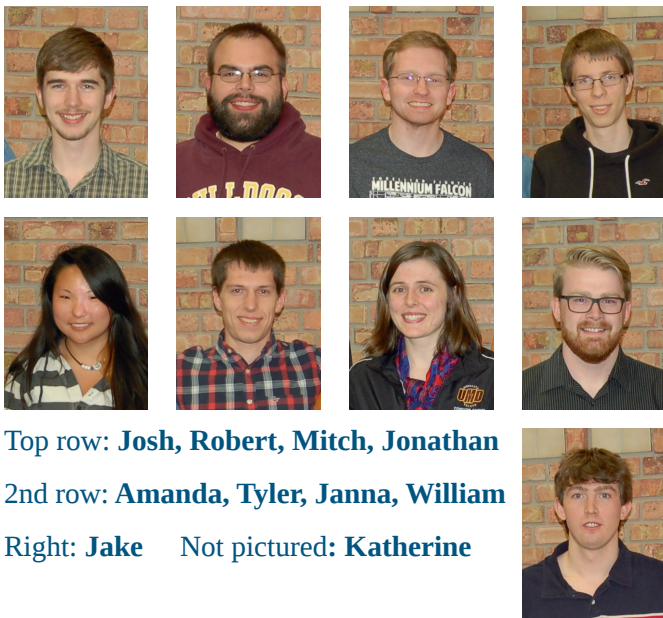
Last summer Kirsi's primary task at NASA was to program interfaces for astronauts on board an Orion-like space exploration vehicle. Last fall she developed training for astronaut Scott Kelly and Tim Peake that teaches them how to use a new device on board the International Space Station. This device will assist them in their completion of complex tasks like preparing for docking vehicles, lab intensive experiments and life support systems repair. This summer she will return to NASA Johnson's Propulsion Department to program using LabVIEW system design software.

Kirsi looks forward to courses from **Pete Willemsen**. "He got me hooked on coding, and for the kind of electrical engineering I want to do, I needed to learn coding."

Undergraduate Awards and Scholarships

Academic Achievement:	**Joshua Muhich** **Robert Degree**
Outstanding Senior:	**Mitchell Rysavy**
Outstanding Service:	**Jonathan Beaulieu** **Amanda Poston**
CS Scholarship:	**Tyler Ashworth** **Katherine Nartovich**
Saturn Scholarship:	**Janna Madden** **William Olding**
Differt Scholarship:	**Jake Pulkkinen**

Top row: **Josh, Robert, Mitch, Jonathan**

2nd row: **Amanda, Tyler, Janna, William**

Right: **Jake**   Not pictured: **Katherine**

2015-16 Graduating Seniors

Megan Anderson	**Nate Gunnarson**	**Caleb Reder**
Jonathan Beaulieu	**Zachary Hertig**	**Drew Rens**
Jake Bible	**Jackson Houston**	**Max Ronning**
Garrett Blythe	**William Jaros**	**Jordan Ross**
Gavin Bonneville	**Jacob Jehlicka**	**Mitchell Rysavy**
Eric Christensen	**Nick Lashinski**	**David Spagnolo**
Bradley Cutshell	**Feng Liu**	**Andrew Spoden**
Logan Dawson	**Tristan Markert**	**Max Steel**
Robert Degree	**Galen Maxim**	**Alek Straumann**
Christopher Doty	**Luke Miller**	**David Strausser**
Derek DuChene	**Noah Miller**	**Liangji Wang**
Jason Erdahl	**Mehdi Mohsenian**	**Valerie Whitebird**
Justin Forsberg	**Joshua Muhich**	**Jay Wilhelmy**
Kyle Freese	**Ryan Ostroot**	**Joshua Wilke**
David Gale	**Amanda Poston**	**Scott Wolff**
Jesse Goebel	**Jessica Randall**	**Xinru Yan**

Grad Program News

The Graduate Teaching Assistant awards were presented to **Nirav Sharda** and **Anicia Dcosta**, shown here with SCSE Dean **Josh Hamilton** and Computer Science Director of Graduate Studies **Pete Willemsen**.

Many computer science graduate students celebrated the Diwali Festival of Lights last fall:

Graduate students attending the commencement ceremony in May are shown below. Graduating second-year students are listed in bold. *Front Row*: Xue Gao, Penghuan Ni, Rushmeet Bahra, **Vamsidhar Kasireddy, Priyankana Basak**, Apaala Basak , **Preethi Chimerla, Mounika Chillamcherla, Puja Davande, Anicia Dcosta.** *Back row:* **Logan Sales**, Sandeep Vuppula, **Nirav Sharda**, Manoj Naik Prakash, **Bharath Bommana**, Sai Vattipally, Jil Pavagadhi, **Yan Bai**. Not pictured: **Swetha Naidu**

ALUMNI NEWS CONT'D FROM P. 5

Christopher Becker (MS '12) continues to work on a PhD at the U. of Utah and interns at Idaho National Lab.

Zachary Biles (BS '12) is Site IT Administrator for Hibbing Taconite, managing all IT resources for approximately 700 employees.

Robert Brown (BS '95) does software development for Sinex Solutions in Duluth, has his own software consulting company, and does the books for his wife's bakery.

Charan Raj Chitirala (MS '15) is software developer for Willis Towers Watson in Mpls and plays a lot of PS4.

Shiva Kumar Chittamuru (MS '15) is a Microsoft Technical Evangelist in New York City. His primary focus is on big data analytics.

Peter Edstrom (BS '99) is Director of Operations at Software for Good in Minneapolis.

John Gleason (BS '07) is Principal Software Developer at Sajan, Inc., working on localization and language translation services.

Charles Goldsworthy (BS '15) is a Front End Developer at 3five, a web dev and digital marketing firm in Duluth.

Scot Halverson (BS '09, MS '12) is Staff Scientist at Los Alamos Nat'l Lab, focusing primarily on porting multi-physics applications to next-gen supercomputers.

Andrew Kasper (BS '06) is with REscour, an Atlanta startup, developing a data management system for big data.

Scott Leerssen (BS '90) is completing 15 years at Racemi, continuing his role as lead architect. Scott lives in Atlanta, GA, with wife Debra and two children ages 13 and 10.

John Lindgren (BA '82) is Chief Engineer for Lockheed Martin in Sunnyvale, California. In his spare time he likes to build and run UAVs and is "still trying to figure out what I'll be when I grow up."

Brian Malecha (BS '97) is Senior IT Manager at Medtronic, focusing on marketing automation and analytics, and continues to serve in the Army National Guard as a Lieutenant Colonel and IT leader for the 34th Infantry Division.

Peter Melling (BS '05) is a Systems Analyst and Developer at Desiring God, a publishing ministry in Minneapolis, using the web to spread Christian Hedonism.

Naveed Memon (BS '04) is CEO at WebHR, cloud-based Social HR Software that was featured in PCMag as one of the best HR Software applications for 2015.

Steven M. Miller (BS '87) is Data Maestro, Global Leader Academic Programs, for IBM Analytics Group, collaborating with academia, industry and government leading efforts to entrench data literacy fundamentals into K-18 education.

Andrew Moravec (BS '00, MS UMTC '04) is Security Architect at Code 42 in Minneapolis.

Matthew Overby (BS '11, MS '14) is a PhD student in CS at the UM Twin Cities working with Prof. Rahul Narain in the area of physics based animation.

Jenna Pederson (BS '01) is founder of the development shop 612 Software Foundry, co-founder of Minnesota's all-women hackathon, Hack the Gap, and a member of the Minne* Board of Directors.

Karthik Ramakrishnan (MS '00) is a Senior Manager at Amazon, leading a team of engineers in Natural Language Understanding for Amazon Echo.

Andrew Reitz (BS '11) is Senior Android Developer at The Nerdery, working on the Android Groovy Gradle Plugin.

Ravikanth Repaka (MS '15) is Software Development Engineer at Amazon, working on AWS Config.

Daniel Rogahn (BS '02) is a developer for Merrill Corporation and 2015 North America Grand Prize winner in the IBM Code Rally Challenge.

Jeff Sharkey (BS '06) is in Boulder, CO, working on Google's core Android OS team.

Irfan Siddiqui (BS '92) is a Program Director at Medtronic, focusing on patient remote monitoring. Sidd lives in Woodbury, MN, with his wife and 2 boys.

Sam Storie (BS '02, MS '04) works at Rosemount in Chanhassen, MN, doing server and client side .NET development for web applications.

Ramakanth Vanga (MS '14) is Senior Software Developer at Inspyrus Inc, working on a new solution for Dynamic Discounting.

David Wicklund (MS '06) is Senior Oracle Apps DBA at Starbucks Coffee in Seattle, WA.

Charles Yust (BS '00) works in San Francisco as a Principal Design Technologist for frog design, a global design and strategy firm.