

Department News

Greetings from Duluth, where April snowstorms have finally given way to May sunshine (sometimes). Last year we reported on the recent hiring of new tenure-track professors **Andrew Sutton** and **Eleazar Leal**, who we spotlight below. We are also happy to announce that we have recently added **Sophia Knight** to our faculty. Sophia, who will begin this fall, was most recently a post-doctoral researcher at Uppsala University in Sweden. Her research focuses on logic for artificial intelligence. Look for more about Sophia in next year's newsletter. Thanks go to professor **Pete Willemsen** for heading up another successful search.

We also expect to hire again next year (sorry Pete!), as our undergraduate program continues to grow.

Some highlights:

- We granted 70 undergraduate CS/CIS degrees in the 2017-2018 academic year, an increase of 75% in the last three years.
- The number of undergraduate CS majors now is over 350, an increase of 40% in the last three years.
- A follow-up report by UMD's Career and Internship Services Office reveals that 95% of our students graduating in 2015-2016 were working in computer science or continuing their education in graduate school.

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Faculty Spotlight

Eleazar Leal

Eleazar Leal was born in Caracas, Venezuela, where his father is a professor of Pharmacy, and where, Eleazar is quick to point out, "the weather is in the mid 80s all year long." His father's love of books introduced him first to classic novels and then to computing, where the combination of problem solving, mathematics, and engineering attracted Eleazar to computer engineering.



Eleazar enrolled at Universidad Simon Bolivar (USB), where he studied computer engineering and served as an undergraduate teaching assistant in Symbolic Logic, Linear Algebra, and Statistics. He received his B.S. in computer engineering from USB and stayed on as a graduate student, teaching a lab course on Programming Language Principles. But one of his advisors put him in touch with a

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Faculty Spotlight

Andrew Sutton

Growing up in Los Alamos, New Mexico, where his father worked at the Advanced Computing Lab, **Andrew Sutton** developed a fascination for the duality that draws many of us to computer science. On the one hand, he was mesmerized by the hardware. "The lab had a Thinking Machines CM-5, a Sparc-based 1024 node parallel supercomputer," Andrew remembers, "and it looked like the deck of a spaceship on Star Trek. I think the light panels were just to look cool and impress people, and it totally worked on me."



On the other hand, Andrew became attracted to the mathematical beauty of algorithms. "I was at Eastern New Mexico University in 2003, and I had a fantastic computer science professor who never owned a home computer," Andrew recalls. "I came to understand that mysterious ideas

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Staff Spotlight

We are pleased to welcome **Kelsey Pederson** as our new office support assistant. Kelsey joins executive secretary Lori Lucia as the public face of our department. Together they handle student concerns, deal with upper levels of administration, manage important databases, arrange department activities, perform clerical work, and much more (roles for which the faculty are extremely grateful!).

A native Duluthian, Kelsey remembers participating in UMD summer sports camps as a kid. She graduated from Duluth Central High School in 2006 and from UMD in 2010, majoring in exercise science and minoring in psychology. So it's no surprise that, when not on the job, Kelsey enjoys being active, listing kayaking, skjoring,



biking, and paddleboarding among her hobbies. "But I'll try anything," she says. "I've done six half-marathons and one full marathon, and participate in local trail races. My next venture is to complete a triathlon."

Upon graduating, Kelsey took advantage of being young and unencumbered. While other students faced a choice between applying their degrees or going to graduate school, Kelsey decided to not decide. "I bought a one-way ticket to Europe and backpacked around the continent in the experience of a lifetime," she remembers. "I learned that I can live a simpler, sustainable life, and it opened my eyes to a bigger world than my own." The experience sparked a desire to explore new places and meet new people that she hopes will continue in her future.

While in school Kelsey joined a non-profit that works with people with intellectual disabilities. That experience led, after traveling in Europe, to her becoming Program Manager for one of the homes in Duluth, followed by becoming Human Resources Manager for the homes' Minnesota locations. After six years she was ready for a change, and also to return closer to home, leading her back to UMD. However, she continues to stay involved with the

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Student Spotlight

Although the UMD CS department does not specialize in video games, undergraduate major **Charles McGregor** is already an accomplished game developer, with his own development studio and titles like Neon Ritual and Fingeance, among others, to his credit.

Rather than focusing on graphic violence, Charles' games are nimble, colorful, sometimes abstract, and accompanied by infectious music, also of Charles' creation. At a recent UMD panel discussion on video game ethics, on which Charles was a participant, he was asked if there was anything he would like to correct in the public's perception of gaming. "Games are art," Charles replied. "They can be beautiful, emotional, and change people's lives."



Charles has become a local expert on game development, giving talks for students in the ACM Club and Media Arts Club. He's also been invited to speak at other schools, including University of St. Thomas and Winona State University. He was a speaker at a Gender, Identity, and Video Games event in the Twin Cities.

Charles is passionate about inclusivity in games, taking into account different user cultures and backgrounds, as well as issues of accessibility, when he designs and develops games. He participated in another panel on this issue at UMD and was featured on local television.

Talented in art and music, Charles knew as a boy that he also wanted to develop games. In middle school, with help from his father, he learned BASIC, and since then has parlayed talents in coding, art, and music into his game development studio Tribe Games.

His work has garnered awards as Official Selections at various conventions and conferences. Glitch in the System won Best Audio at GlitchCon 2015, Fingeance has won

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Undergraduate News

Once again, UMD CS students challenged themselves to two collegiate programming competitions during 2017-2018. In fall 2017 two teams, Dijkstra's Choice and Monte Carlo's Algorithm, competed in the DigiKey Collegiate Computing Competition (DKC3) in Thief River Falls. Twenty-two teams from 13 schools in four states competed, with UMD's teams finishing in 4th and 6th place. Jeff Smith, a member of Dijkstra's Choice, commented after the competition, "It was a fun experience and I'll definitely be going next year!" Here are Dijkstra's Choice members **Cody Seavey, Jeff, Jo Kachelmeier, and Chris Dressen.**

UMD teams have won the DKC3 four times since 2000. **Ruta Wheelock**, competing in her second DKC3 as a member of Monte Carlo's Algorithm, said "Programming problems were challenging but we worked as a team. I appreciate my teammates for their contributions and positive attitudes throughout the day." One of her teammates, **Jake Pulkkinen**, lamented, "Everyone competing became closer friends and I'm sad that I will not be able to compete next year." Here are **Ruta, Evan Composto, Jake Onsgard, and Jake Pulkkinen** at the event:



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Graduate Program News

Last fall saw the addition of 15 new first-year graduate students to the Master's program:

Christianah Adigun	Austin Gordon	Janna Madden	Zachary Patterson	Sagari Vatchavayi
Yumna Anwar	Mazin Jindeel	Yifeng Mei	Aleksandar Straumann	Zhenduo Wang
Usman Gohar	Prateek Joshi	An Nguyen	Nisarg Thakur	Bo Wen

In September we welcomed these students and celebrated the start of another academic year with a picnic for all graduate students at Park Point:



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Preserving History

Some of us are old enough to remember when the computing landscape was dominated, not by Apple, Google, Microsoft, or even IBM, but by companies like Wang, Xerox, and Digital Equipment Corporation (DEC), as main-frame computers, which filled rooms, came to be replaced by refrigerator-size mini-computers. One such machine was DEC's iconic PDP-12, produced between 1969 and 1972, when 725 units were sold. It's estimated that perhaps five working PDP-12s still remain, and one now lives on the third floor of Heller Hall.

The story began when **Pete Willemsen** was offered a machine by a retiring professor on the UMTC campus. It was in near-perfect condition and with complete accessories and documentation, so the offer was tempting. It would also be a valuable teaching tool; although modern computers are smaller and faster, their architecture has changed little over the decades, and a machine like the PDP-12 would allow hands-on observation of a computer's components. So Pete and **Peter Peterson** teamed up to bring the machine to UMD. "Computers like this are part of computer history," Peter observed at the time. "We couldn't pass it up."

Last summer, electrical engineering and computer science student **Dawson Rosell**, shown here, worked with Peter to restore and test the machine for his UROP project.



By August, with the help of an antique computer collector from South Dakota, Peter and Dawson rolled out the machine for a demo enthusiastically attended by interested campus observers and local news and television organizations. Of particular interest was the playing of the world's

Alumni News

The annual meeting of the Association for Computational Linguistics (ACL), held last August in Vancouver, became a mini-reunion for former graduate students of **Ted Pedersen**. Shown below are **Saif Mohammad** (MS '03), **Sid Patwardhan** (MS '03), Ted, and **Xinru Yan**, who was a student at the time and has recently completed her MS degree. Also present (but not shown) was **Varada Kolhatkar** (MS '09).



Saif, a research officer at the National Research Council of Canada in Ottawa, has become a visible and active member of the ACL research community. Sid moved from IBM Watson in New York to Apple Siri in Silicon Valley as of last October. Varada is now a post-doc at Simon Fraser University in Vancouver, and has been there about a year.

* * * * *

In other alumni news,

Li Su (BA '83) has been in Software Engineering for over 30 years, working for companies in the Minneapolis and Dallas areas, including Control Data, Target, Analyst International, Rockwell International, GTE/Verizon, i2 Technologies, General Electric, and currently with Bank of America as Vice President, Tech Manager.

Robert Neff (BS '91) has made a career out of embedded software, working with military intelligence, elevator controls, TV cable boxes, defibrillators/pacemakers for EMTs, and railroad monitoring systems ("my first software job that required my own hard hat and steel-toed boots"). Robert is currently with RF Ideas, a badge reading company with over 5 million readers in the field.

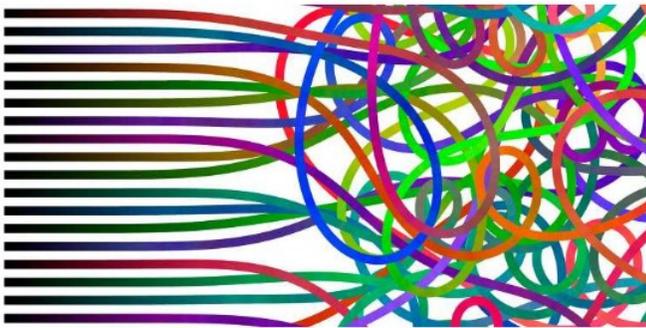
Joshua Muhich (BS '16) is in Duluth working at Saturn Systems and focusing mainly on web development.

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Retired?

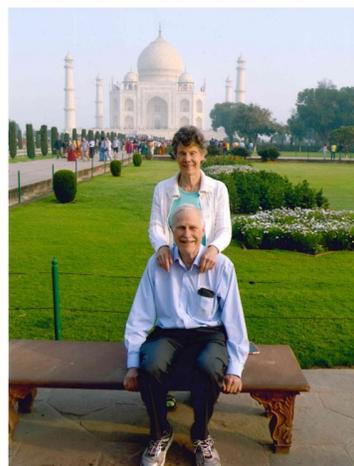
Last year we reported on the "retirement" of **Doug Dunham** after 40 years at UMD. Doug's research and adventures have always made for great newsletter content, and 2017-18 was no exception. He continues to give presentations on computer art both locally and at the Joint Math Meetings. Here's a piece called "Quantum Entanglement Explained:"



Doug and Helena love to travel, and last winter they took a trip to India and Nepal. They were surprised to find a working Jacquard loom at a silk weaving outlet in Varanasi:



Jacquard looms have a chain of punched cards corresponding to rows in the fabric design. Their use of replaceable cards to control a sequence of operations is considered an important step in the history of computing hardware. "Never thought I would see one in action," said Doug. Here are Doug and Helena in front of the Taj Mahal:



Doug has long been a fan of rugged, self-propelled outdoor sports like hiking, marathoning, triathloning, rafting the Grand Canyon, and

FACULTY SPOTLIGHT CONT'D FROM P. 1

colleague at the University of Oklahoma, with which USB had an exchange program, and so Eleazar moved to Norman, OK (where the temperature averages in the 60s for the year, and, we point out, tornadic activity is particularly frequent and intense).

At OU Eleazar was a teaching assistant in both introductory programming and graduate level courses as he worked his way to M.S. and Ph.D. degrees. He was a CS Alumni Scholarship recipient and in 2014 was voted CS Ph.D. Student of the Year. He did his dissertation on spatial query processing with GPUs and multicore CPUs, where the goal is to answer queries about two or more moving points via GPS tracking. Currently his research consists in designing parallel algorithms for GPUs and multicore CPUs that use data mining to solve database management problems, or that use database management techniques to solve data mining challenges.

Reflecting on his first year at UMD teaching DBMS and machine learning, Eleazar says, "It was exciting and challenging. I was surprised by the curiosity of many of my students, who would ask deep and challenging questions during class."

Eleazar has a variety of outside interests. At Oklahoma he found himself president of the Sooner Ballroom Dance Club. "I wanted to meet new people," Eleazar recalls, "So I started going to the club's meetings and lessons. They were looking for new officers, but no one wanted to serve. I didn't want the club to disappear, so I became president. I was in charge of publicity, renting the university rooms, hiring the dance instructors... Not exactly what I was expecting, but it was a lot of fun."

Eleazar loves to bike, noting that the terrain in Duluth is quite different than the flats of Oklahoma. He also enjoys photography and going to the theater. "I went to all the plays I could in Oklahoma," he says, "and I've continued doing so in Duluth. I think that the quality of Duluth's shows is very high, including UMD's theater program."

We think the same about UMD's CS program, now that Eleazar is on board.

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DEPARTMENT NEWS CONT'D FROM P. 1

- The same report finds the average starting salary for our graduates is about \$60K.
- As we described last year, the CIS (Computer Information Systems) major has been discontinued, and the phasing out process is nearly complete.

In other personnel news, **Henry Wang** and **Arshia Khan** were recently awarded tenure, with both now at the level of Associate Professor. And after eight years as the department's office support specialist, **Clare Ford** has resigned so that she could devote more time to her interest in fiction writing. We were sorry to see Clare go, but we are delighted to welcome **Kelsey Pederson** in her place (see separate article, Staff Spotlight, in this issue).

Tea Time, the social/technical brainchild of professor **Peter Peterson**, continued in 2018 with popular gatherings focusing on an evolving competitive programming platform developed by grad students (think Tron and Space Invaders), and a trip to the Great Underground Empire, with Peter talking about the history of "Interactive Fiction" games. Here are students learning about the classic game, Zork.



The Women in Computing (WIC) group, under the tutelage of professor **Arshia Khan**, continued as a popular way for women CS students to socialize and share experiences. Events included a Frisbee night, Bowling night, and investigating Coding via Knitting. For the second year in a row, WIC entered the only all-female programming teams in the annual Northern Michigan University Invitational Programming Contest in March 2018 (see separate article, Undergraduate News). At the end of the year, three stu-

dents, **Liz Altobelli**, **Janna Madden**, and **Yumna Anwar**, were recognized for their contributions to WIC. They are shown here with department head **Hudson Turner**:



Here are participants in WIC's end of the year bowling event in April:



Back row, left to right: **Janna Madden**, **Peter Peterson**, **Liz Altobelli**, **Ellie Honerman** Front row: **Yumna Anwar**, **Abby Pederson**, **Kelsey Pederson**, **Hannah Willemsen**, **Pete Willemsen**, **Lori Lucia**, **Arshia Khan**

In the rest of this issue, enjoy more faculty and staff news, a student spotlight, undergraduate and alumni news, a "crazy cool computer," and more. And please, keep in touch.

STAFF SPOTLIGHT CONT'D FROM P. 2

non-profit. "I still volunteer for events, assist with projects, and lead various camping trips throughout the year," she says.

Kelsey and her husband Kyle recently purchased Kyle's childhood home, which is barely two miles from where Kelsey grew up. They are in the midst of updating their house ("one room at a time"), while finding time for hockey games ("Go Bulldogs!"), listening to local music, and frequenting the area's ubiquitous breweries. Besides the previously mentioned endurance sports, Kelsey includes yoga, hiking, camping, DIY projects, photography, and gardening among her favorite activities.

And what native Duluthian who loves the outdoors would not share that love with canine companions? "My pride and joy are my dogs Suvi the Siberian Husky and Elvis the

Bloodhound," Kelsey asserts. "I take them on many hikes along the North Shore's local trails. It's one of my favorite places to be in the summer time."



Despite her post-graduation travel urge, Kelsey always suspected she might wind up back at UMD. "College was some of my best times with friends, and as an employee I work with a wonderful group of staff and faculty," Kelsey says. "I enjoy working for UMD as there is always something going on, always something to learn, the students bring a sense of energy that is contagious, and working in an educational environment is enriching."

We too are happy to have Kelsey on board.

STUDENT SPOTLIGHT CONT'D FROM P. 2

Best Gameplay, and HyperDot has won Best Gameplay and Best Multiplayer at several conventions.

At UMD, Charles has also worked on an app that incorporates video game elements into language learning. Working with professors **Dan Nolan**, **Dana Lindaman**, and **Pete Willemsen**, Charles helped to develop a French and German language game app that makes learning verb conjugation and pronunciation in the two languages an interactive experience.

Charles also works in Pete Willemsen's SIVE (Simulation and Interaction in Virtual Environments) lab, where students create interactive, immersive visualizations. On top of all this, Charles is also an art minor, specializing in graphic design and illustration, and will be hosting an exhibition in the Tweed this spring. If there were more hours in the day, Charles would pursue his other interest: saxophone, which he has been playing since the second grade and for which he's gained some notoriety as a jazz musician.

Charles credits Pete Willemsen and his software engineering course with learning to work on a team and partake in agile development. Beyond that, "I have also worked with Pete since I was a Freshman," says Charles. "He has brought me onto various projects and given me the opportunity to collaborate with other professors, students, and faculty."

With graduation near and with so many talents, Charles has a number of options, but he's pretty certain his future is in game development, whether on his own or working for another studio. "I love video games so much because they are the culmination of all of the passions that I have," Charles says.

Wherever Charles goes, we're pretty sure he will succeed.



FACULTY SPOTLIGHT CONT'D FROM P. 1

about computing can live in an abstract mathematical world." Still, this world was intimately related to hardware, and Andrew applies a metaphor appropriate for the environment in which he was raised. "A computer is like a particle accelerator that can probe this abstract universe," he muses.

Andrew's interest in the theoretical extended beyond computing, as he double majored in computer science and music theory in college. With these broad interests he was naturally attracted to computer science's multi-disciplinary appeal, especially to physics, math, and biology. The possibility of interdisciplinary research sold him on graduate study in computer science, and he eventually received his Ph.D. at Colorado State University. The goal of that work was developing a sound and mathematically rigorous understanding of the influence of problem structure on search and optimization algorithms to improve their usability and performance.

Andrew's rich postdoctoral experience has made him "feel like a proper citizen of the world". It began at the University of Adelaide on Australia's southern coast, where he analyzed algorithms from the field of evolutionary computation. That was followed by a position funded by the EU in Jena, Germany, where on his way to work Andrew was delighted to walk past the house where the logician Gottlob Frege used to live. He then followed his supervisor to an institute in Potsdam, where he lived in the Babelsberg district, famous for being the so-called "Hollywood of East Germany". Andrew is happy that his son and daughter, both born abroad, started speaking and understanding German very well.

In keeping with his multidisciplinary interests, Andrew found the EU project's joining of computer science and population genetics compelling. "The objective was to mathematically analyze the running time of optimization algorithms inspired by evolution," he remembers. "We had some stunning revelations that a number of the processes we study are strikingly similar, and we could translate results from one field to another."

Andrew now has had two semesters at UMD, teaching data structures and artificial intelligence, and continuing his research on bio-inspired computation. "Mostly, I have been seriously impressed by the students," he asserts. "It is amazing how motivated and bright they are as a whole."

Andrew has also been impressed by the collegiality of the

faculty, which may have to do with the fact that, having been raised in the mountains, he is, like many of us, an outdoor enthusiast. "When I first moved here, I wondered when the City of Duluth was going to issue me my Subaru Outback with a canoe on top. I saw them everywhere!" Andrew enjoys hiking and he already knows one strategy for surviving Northland winters: to get out and cross-country ski. And as it happens, Andrew's wife is an avid kayaker, "so she is happy to be living next to a rather large lake." We too are happy to have Andrew and his family on board.

Outreach

Peter Peterson and his Laboratory for Advanced Research in Systems continue to facilitate the UMD Cyber Youth League, an online programming contest for middle and high school students. As a web application, UMDCYL costs schools and students nothing. Even rural schools without lots of access to technology can participate.

Teams of students compete to write programs in a simple language to control avatars in classic video games, like Pac-Man, Space Invaders, and TRON, in a series of challenges. The winner of each challenge is the program (or "bot") that earns the most points, with the champion team having the highest overall performance across all challenges. Schools can also choose to use the framework and challenges without competing.

This is our third year running the league. Currently, 18 middle and high schools in Northeastern Minnesota and Northwestern Wisconsin are participating, involving students from Chisholm, Warba, Mountain Iron-Buhl, Hibbing, Duluth, Poplar, Ashland, Drummond, Washburn, Rice Lake, and more.

Here is a snapshot of the Space Invaders game, which some of us old-timers can appreciate:



UGRAD NEWS CONT'D FROM P. 3

The 19th Annual Northern Michigan University Invitational Programming Contest was held in March on the campus of NMU in Marquette, MI. Six schools from Michigan, Minnesota, and Ontario were represented by 29 teams. CS faculty **Arshia Khan**, **Jim Allert**, and **Eleazar Leal** brought eleven students from UMD's Women in Computing group, shown here:



Back row, left to right: **Yumna Anwar**, **Sourya Silwal**, **Ellie Honerman**, **Megan Effinger**, **Xingjian Ye**, **Sagari Vatchavayi**, **Christianah Adigun**

Front row: **Ruta Wheelock**, **Roni Scott**, **Liz Altobelli**, **Abby Pederson** (Yumna, Sagari, and Christianah are graduate students)

Although UMD did not win any single-team honors, we did take third place in the overall school results, and were the talk of the contest as being the only all women teams! Megan, a veteran of two NMU contests, said, "This competition is always very comfortable despite the competitive aspect. I had more fun with programming than I ever had on an assignment. And professors aren't so scary when they are buying you ice cream or staging a photoshoot with a big stuffed bear. I had a blast." Here are Ellie, Megan, and Abby with said bear:



Ellie, another veteran competitor, said, "It was really nice to get to know the other women in the CS department, and it was great to get to know the professors as well. Professor Leal made sure we all left with at least two pizzas each!" Several competitors agreed with Ellie when she said, "The NMU programming contest is done with a focus on fun and learning, and I am more confident in my coding abilities after attending these past two years." Wait till next year!

This year's undergraduate awards for graduating seniors were presented at the annual department pizza party in April:

Outstanding Academic Achievement: **Ruta Wheelock**

Outstanding Senior: **Katia Nartovich**

Outstanding Service 1: **Christopher Dressen**

Outstanding Service 2: **Cody Seavey**

Here are Chris, Cody, Ruta, and Katia with department head **Hudson Turner**:



We also awarded a number of scholarships for 2018-19 to returning students:

Differt Scholarship: **Shuning Jin**

CS Department Scholarships: **Frank White**, **Thomas Wuertz**, **Yue Yin**

Bridget & Clyde Rogers Scholarship: **Emily King**

Here are Yue, Thomas, Shuning, Frank, and Emily with Hudson:



GRAD NEWS CONT'D FROM P. 3

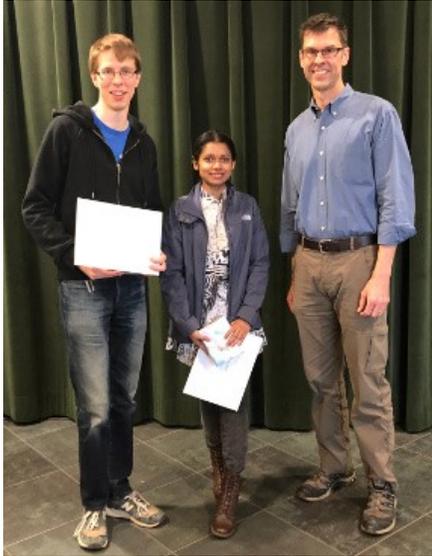
Each year in the spring we recognize two second-year Master's students who have excelled as graduate teaching assistants. This year the awards went to **Jonathan Beaulieu** and **Arshia Hassan**, shown here with director of graduate studies **Pete Willemssen**:

Jon was selected for his work in both Security and Operating Systems where, beyond his normal duties, he contributed exercises and grading scripts, and even covered a course during a paternity leave.

Arshia was selected based on her conscientiousness, quality of grading, preparedness, and especially her effectiveness when dealing with student learning issues.

At commencement in May, twelve second-year graduate students received their M.S. degrees:

Dennis A. Owusu	Kushagra Kumar
Jonathan Beaulieu	Noah Miller
Sai Cheedella	Madiha Mirza
Vaclav Hasenohrl	Zhiyuan Peng
Arshia Hassan	Swathi Vallabhajosyula
William Jaros	Xinru Yan



UGRAD NEWS CONT'D FROM P. 9

Here is the full list of students receiving BS or BA degrees in 2017-2018:

Ahlbrecht, Erik	Kropid, Nathaniel
Ahmad, Mueez	Larsin, Tristan
Alacheff, Matthew	Lau, Courtney
Ali, Hamza	Lindahl, Isaac
Altobelli, Elizabeth	Lumppio, Jeffrey
Anderson, Jenna	Martin, Claire
Anderson, Luke	Martin, Sam
Barrett, Melissa	McDonnell, Ian
Bourgeault, Zachery	McGregor, Charles
Bowditch, Kevin	Mckeown, John
Braband, Peter	Monnier, Benjamin
Bredeson, Joseph	Nartovich, Katia
Brown, Anthony	Nelson, Landon
Carpenter, Benjamin	Nielsen, Andreas
Craig, Paul	Niska, Daniel
Dexter, Matthew	Novotny, Ryan
Diaby, Sidi	Ondieki, Clarence
Dowling, Dale	Onsgard, Jake
Dressen, Christopher	Pachnik, Michael
Ellis, Ben	Patterson, Danielle
Ernst, Justin	Pauly, Jacob
FitzSimons, Edward	Pedersen, Tisha
Fleischman, Branton	Peterson, Joshua
Gieske, Nathan	Pulkkinen, Jake
Gjersvik, Nicholas	Reed, Abby
Glenn, Clint	Schauer, Kevin
Hallberg, Adam	Scherlin, Cameron
Harshe, Brandon	Seavey, Cody
Harvey, Ben	Sweeney, Ryan
Heim, Jacob	Tangen, Alexander
Jallen, Matthew	Vang, Jeffrey
Jennrich, Christopher	Wei, Yichen
Kachelmeier, Josie	Wheelock, Ruta
Kapustka, Cliff	Wurdock, Donald
Kemp, Colin	Yuan, Gaoming

Donate

If you would like to defray the cost of education for worthy student, please consider donating to the UMD Department of Computer Science Scholarship Fund. Just go to <https://scse.d.umn.edu/about/departments-and-programs/computer-science-department/support>

PRESERVING HISTORY CONT'D FROM P. 4

first video game, Spacewar, introduced by Peter here to a couple of young players.



Last April, the 800-pound computer was rolled into Ted Pedersen's computer architecture class, facilitating its role

as a teaching tool. Below, students watch as Peter and Dawson demonstrate the unique combination of how history, technology, and education come together in computer science.



ALUMNI NEWS CONT'D FROM P. 4

Peter Euphosin (BS '06) is Manager of Server and Application Operations for Datalink, an Insight company. Peter manages teams that do infrastructure service delivery, operations, and Insight corporate labs.

Laura Hulse (BS '10) is Information Systems Large Project Lead for Blessing Health System in the hospital and clinic setting. Laura leads large scale software implementations and upgrades, including for the laboratory and imaging systems, and various other upgrades to revenue cycle applications including registration and billing.

Piero Toffanin (BS '12) lives in Florida and works as a consultant. One of Piero's projects is OpenDroneMap, a free and open source toolkit for processing aerial drone imagery for land surveying, mapping and model analysis. Piero, the lead contributor to its graphical interface, likes this project because "you get to fly drones for work."

Matt Overby (MS '14) is a third-year PhD candidate at the University of Minnesota Twin Cities. Matt's research area is physics based animation, with a focus on elastic deformation and constrained optimization. Last summer Matt interned at the VFX studio Digital Domain in Vancouver BC, and this summer will be interning at Adobe's Creative Intelligence Lab in Seattle.

Brian Nordmann (BS '02) is IT Director of Dudek and Associates, an Environmental and Engineering Services firm in Encinitas, CA.

Timothy Duch (BS '14) is with Amazon, focusing on the creation and shipping of an Android app for Amazon Key to a large customer base. Timothy is currently maintaining and further developing "this exciting product."

Venkataravikiran Ravva (MS '14) is working as a software development engineer at Amazon in Seattle for Amazon Web Services.

Charles Goldsworthy (BS '15) started his own web development and design company, Avidest LLC, specializing in ecommerce needs on the Shopify platform.

Mitchell Rysavy (BS '16) is a Software Development Engineer at Amazon in New York City, working as a full stack developer for Amazon's subsidiary Shopbop, which specializes in up-scale clothing.

Zuohang (Jimmy) Yu (BA '17) is a Software Development Engineer at Amazon Seattle, working on a big data processing platform. Advice from Jimmy: "Computer science is not all about coding. All knowledge will be helpful in your career."

Bulldog Bytes is conceived and written by **Tim Colburn** and produced by **Kelsey Pederson** with assistance from **Lori Lucia**.

RETIRED? CONT'D FROM P. 5

even surfing in Lake Superior. Perhaps it's not surprising that in May he would opt for something a little more, shall we say, mechanized, at Dream Racing in Las Vegas. "I drove two sports cars, a Maserati GranTurismo Sport and Ferrari 458 Italia, for five laps each, with an instructor at my side," Doug relates. Here he is alongside the Maserati and behind the wheel of the Ferrari:



Doug was disappointed that the fastest road course could not be used, since its infield was taken over by a huge music festival. "I don't think I broke 100 mph," Doug laments. "I would like to try the faster course sometime."



Tune in next year, when Doug will be 80, to find out.