

Department News

Greetings, Bulldog Computer Science alumni and friends! After a typical eight-week start to a typical spring term, on March 10 we began our not-so-typical semester break. By the end of the week, the governor had declared a "peacetime emergency," while the University canceled all non-essential travel, suspended in-person instruction, and encouraged students to stay home, due to COVID-19. Faculty had literally days to convert their courses to online instruction (see separate article).

Aside from that, the affairs of the Computer Science department continued. Undergrad enrollment held steady at around 400, with over 70 undergraduates completing their BS or BA this year and 10 graduate students completing their MS degree. Our faculty published 36 papers in 2019, and completed one book manuscript. We converted MWAH 177, for decades a dedicated

computer lab, to an active-learning classroom with 50 movable seats.

We introduced a dual-listed course numbering system that allowed undergraduate and graduate students to take the same course, with different evaluation criteria, for more efficient course delivery. We also added a new advanced course on Natural Language Processing, a new advanced course on Security, and a new course on Sensors and the Internet of Things.

After nine years as department head, **Hudson Turner** is stepping down and handing the job to **Pete Willemsen**. Hudson is also retiring after 22 years with the department (see separate article). To replace him, we were able to interview and hire a new junior faculty member, **Jomara Sandbulte**, just before the disruption of COVID-19. Jomara comes

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Faculty Spotlight

Department Head Hudson Turner Retires

Hudson Turner, a department member for 22 years and department head since 2011, is retiring at the end of the current academic year. Hudson and his wife Bonnie plan to relocate to the west coast, "for the climate and the grandkids," he says. We also wonder whether curling is in his future (see below).

While Hudson was department head, undergraduate enrollment in computer science more than doubled, to nearly 400 today. He presided over the hiring of seven new faculty, and oversaw our program's latest renewal of national accreditation status with the Accreditation Board for Engineering and Technology.

Like many academic computer scientists, **Hudson** came to the discipline indirectly. He started at the University of Texas at Austin in physics but turned to English, reading novels and philosophy, writing poetry, and exploring film.



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Teaching in the Time of COVID-19

The period from March 10-16, 2020, was tumultuous to say the least. At the time, there were three known cases of COVID-19 in Minnesota, but with everyone else we followed with alarm its spread internationally and on the east and west coasts of the U.S. Within a week, the U of M extended spring break, directed that classes resume through "online or alternative" instruction, and extended that directive through the end of the semester.

Many university faculty were completely unprepared, particularly those who teach fine or performing arts. Luckily, those of us in computer science have over the years moved most if not all of our course content, including lectures, lab exercises, and project assignments to the web, the cloud, GitHub, etc. But many of us have also embraced an "active learning" approach to teaching, which depends heavily on in-class experience and one-on-one encounters between students and faculty. So we had to scramble.

On March 12, **Pete Willemsen**, one of a number of department tech gurus, created a Slack channel for department affairs. We were in the midst of a faculty search, so we used Slack to discuss how to allow candidates to give presentations, at a time when faculty and students had just been asked to stay home. So

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Undergraduate News

CS Scholarships for Academic Year 2020-2021

Bridget & Clyde

Rogers Scholarship:

Reilly Moberg



CS Scholarship:

Corey Knutson



CS Scholarship:

John Pan



Differt Scholarship:

Evan DeMorett



CS Scholarship:

Yongming He



CS Scholarship:

Jane Dylla

CS Scholarship:

Caleb Rother

Saturn Systems Scholarship:

Jacob McCormick

CS Undergraduate Senior Awards 2019-2020

Outstanding Academic Achievement:

Kiersten Johnson

Outstanding Senior:

Chandler Swift

Outstanding Service:

Kirsi Kuuti

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TEACHING IN THE TIME OF COVID-19 CONT'D FROM P. 1

now many of us started receiving Zoom links to candidate presentations and to one on one online candidate interviews in lieu of office meetings. But many of us had never used Zoom, or Slack for that matter.

Since the university had a corporate license for Zoom, it was a natural choice both for meeting faculty candidates and for delivering classes online for the first time. Another Slack channel devoted to online teaching was created, followed by lively discussions, including how to use Zoom to record lectures, hold office hours, poll participants, create breakout rooms, mitigate zombombing, and increase accessibility. Soon discussion turned to other tools, like Slack and Discord, for engaging online student communities.

Shortly after the University changed to online course delivery, students were given the option of choosing the S/N (pass/fail) grading option for any course. At the same time, many courses' second midterm exams were coming up and discussion turned to

how to give online exams, which some of us had never done.

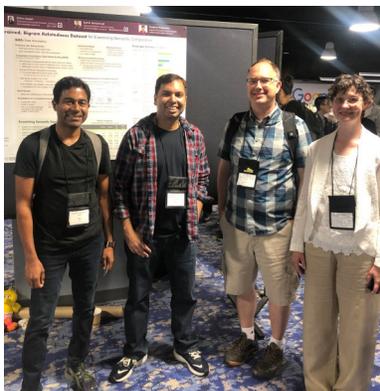
The University had adopted Canvas, replacing Moodle, as the official course management software system. Canvas supported online quizzes as well as "exam monitoring" services designed to keep students from cheating but which some students regarded as Orwellian. Without such services faculty could find average exam scores significantly higher than normal, so there are ongoing discussions about how best to assess student performance, including dropping exams entirely.

Prior to this spring, a department's foray into online course delivery might have been an "experiment." For us, and many others, it was "trial by fire." But there are upsides. We have learned things that are valuable in any scenario, for example, Zoom screen sharing by students to get programming help during virtual office hours.

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Alumni News

The annual conference of the North American Chapter of the Association for Computational Linguistics, a large event for researchers in natural language processing, is a chance for **Ted Pedersen** to meet up with former students. Last summer's conference in Minneapolis drew 1,600 participants, including **Sid Patwardhan** (MS '03), **Saif Mohammed** (MS '03), and **Bridget McInness** (BS, MS '04), shown here with Ted.



All three went on to receive PhDs. Sid is now with Apple, Saif is at the National Research Council of Canada, and Bridget is an Assistant Professor at Virginia Commonwealth.



Ted also ran into **Jon Rusert** (BS, MS '17), now a PhD student at Iowa, shown here.

In February, Ted attended a networking event in Minneapolis called Minnedemo, where he met **Jenna Pederson** (BS '01) and **Vidya Attvili** (MS '14). Jenna, who was featured in Bulldog Bytes in 2017, was one of the organizers of the event, which featured presentations by students showcasing working technology products made in Minnesota. Vidya works at Target where she is using machine/deep learning on image processing problems. Here are Jenna, Ted, and Vidya.



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Graduate News

This last year saw the addition of twelve first-year graduate students to the Master's program:

Paul Craig
Zakaria Daud
Areeha Durrani
Tasiful Islam
Asif Mahmud
Julian Nowaczek

Carson Powers
Abdul Samad
Preethi Sankineni
Shawn Savela
Xiane Tang
Yue Yin

Each fall, the department hosts a picnic where the graduate students and faculty can all meet and relax for the day.

Here is the group, all but one taking a break from paddleboarding in Lake Superior:



Each year we also recognize two second-year Master's students who have excelled as graduate teaching assistants. This year the awards went to **Dale Dowling** and **Mahsa Soufineyestani**, shown here.



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FACULTY SPOTLIGHT CONT'D FROM P. 1

This led to a Masters in Library and Information Science, and "I ended up a professional librarian, near the books I loved, doing small good in the world, supporting myself," he remembers.

Hudson started programming while in library school and found it compelling. His first computer was a Macintosh with 512K of RAM running Pascal. His favorite languages became LISP and Haskell, languages of choice for AI at the time. "I read cognitive science, played lots of computer chess and go, and worked my way through most of the undergrad CS curriculum at UT Austin," he recalls. Eventually, he joined the CS graduate program there, which he calls "deeply engaging and rewarding," earning a Masters and Ph.D.

Before AI became dominated by Big Data and machine learning, much research focused on logic-based methods for representing knowledge. Hudson's dissertation on causal theories provided an elegant and robust solution to the notorious Frame Problem, or "representing the common sense assumption that things stay the same unless they are caused to change," as Hudson describes it. His work provided a sound basis for automated planning.

It also led to a faculty position at UMD in 1998. In 2001 **Hudson** was awarded an NSF CAREER grant for his work on causal theories. Over his career he has published two dozen papers, been cited over 3000 times, and supervised 11 Masters students. His teaching has ranged widely, from Intro CS to Graduate Computational Logic, with Compilers, Discrete Structures, and Computer Ethics in between. His favorite course: Automata Theory.

Hudson will have plenty to do in retirement, with those grandkids and hobbies that include reading (ever the librarian), movies and streaming, music listening, and cooking.

And then there's curling. Some of us were surprised to find a formalist schooled in Texas lured to a sport most popular in Canada, but that's what happened. Hudson eventually won the Duluth Curling Club Men's Championship and the Open Championship, twice each. Included were wins over 2018 Olympic gold medalists John Shuster and Tyler George.

Hudson leaves a (mostly) young, energetic, and committed department with a bright future, in large part because of him. "It's been a privilege to work with the fine and dedicated folks in the CS department," Hudson says, "And to try, sometimes with success, to explore and share the beauty of thinking and learning. I'm happy to have been able to contribute."

We thank Hudson for his leadership, for keeping department meetings to a minimum, and always having a smile.

DEPARTMENT NEWS CONT'D FROM P. 1

to us from Brazil by way of Pennsylvania State University, where she is receiving her Ph.D in Health Informatics.

With Pete becoming department head, **Arshia Khan** will replace him as our new director of graduate studies. Arshia had another productive year, highlighted by participation in the 3M Leadership Conference in January. In the fall she organized the 2nd annual UMD Undergraduate Research Workshop, presented by Women in Computing (WIC), and in the spring the annual WIC conference was held virtually. Arshia recently was promoted to full professor.



Peter Peterson had a productive year on his NSF-sponsored Security Misconceptions Project. In January, during international tensions surrounding missile attacks in Iraq, Peter was interviewed by a local Duluth TV station and asked about Iran's cyber attack ability.



Ted Pedersen participated in UMD's 2020 Summit on Equity, Race, and Ethnicity, leading a workshop that tried to reach consensus on what is and is not hate speech. Such criteria could aid both human and computer-aided moderation of social media platforms negatively affected by such speech.

This article would not be complete without mention of the continuing saga of a possible departmental move. After completion of the HCAMS Building in 2018, we were slated to move to a rehabbed Chemistry Building. However, state funding for the rehab is lacking and of course the budget situation is now clouded with uncertainty. The question of when the department will ever move is moot, with most of us unsure when we will return to campus at all. But we are still here, in cyberspace, and we would love to hear from you.

Keep in touch.

ALUMNI NEWS CONT'D FROM P. 3

In other alumni news...

John Severson (BS '80) is retired and living in New Hope, MN. He began his career as a diagnostic engineer in the advanced design lab at Control Data Corporation. He was a founding employee of ETA Systems, CDC's supercomputer subsidiary, and later joined Unisys. He ended his career with his "dream job" at Cray Research.

Rhett Dahle (BS '86) has 27 years as Computer Scientist with the US Naval Surface Warfare Center, Corona CA, and 6 years as Systems Engineer in the private sector. Rhett has two children, including a daughter who graduated from UMD in 2019. Rhett attended his first UMD football game at Homecoming 2019 since last playing in 1985.

Daniel Ellison (BS, '89) is a Senior Business Intelligence Specialist for Optum/UnitedHealth in Eden Prairie, MN.

Shane Gatz (BS '92) is Software Development Manager for Sezzle, where he leads the internal operations team on projects including the corporate website, an internal administrative dashboard and many integration and automation tools.

Christopher Busch (BS '96) is a data scientist and software architect who is passionate about delivering value, minimizing waste, and meeting a customer's needs. "I am very thankful for what I learned in Duluth during my undergraduate years," he says. "I never stop learning." Chris received his MS in data science in 2017.

Brian Malecha (BS '97) leads an application development team focused on Digital Health solutions at Medtronic. He also continues to serve in the Army National Guard and recently took command of the 34th Infantry Division Headquarters Battalion, Minnesota Army National Guard.

Anagha Kulkarni (MS '06) recently was awarded tenure and promoted to Associate Professor at San Francisco State University. She works at the intersection of information retrieval, natural language processing, and machine learning.

Nick Lashinski (BS '15) is a full stack developer for SRF Consulting Group in Minneapolis, where he is also working part-time on a Masters Degree in Data Science.

Joshua Muhich (BS '16) is an Application & Web Developer at UMD ITSS. Josh and his new wife are enjoying their lives in Duluth.

Mitchell Rysavy (BS '16) works for Amazon Web Services as a Software Engineer in the Commerce Platform organization.

Sam Anderson (BS '17) is newly wed and living in Roseville, MN. He works as a Data Engineer for 3M, building internal-facing applications for 3M Manufacturing and Supply Chain Digitization and Advanced Analytics department. This is his 2nd role at 3M and have been there since graduation.

Melissa Barrett (BA '17) is a DevOps Engineer at a startup called phData Inc. in Minneapolis. phData provides Big-Data-as-a-service and was named a MSP Business Journal Best Place to Work (2017, 2018). Her primary responsibilities are maintaining clients' BigData clusters and infrastructure.

Phil Javinsky (BS '17) is a Full Stack Developer at Provation Medical.

Noah Kuzas (BS '18) is working with Performance Engineering and Automation at Express Scripts PBM, interacting with a variety of internal services, systems and applications.

Jacob Beck (BA '19) is a Software Engineer at Target where he works on a team that supports and builds internal tools.

If you are an alumni and would like to update the CS Department, please email cs@d.umn.edu, we would love to hear from you.

COVID-19 CONT'D FROM P. 1

Pete, ever the early-adopter, has taken to investigating virtual reality (VR) tools for enhancing the online experience of his graphics class. Here's Pete using an Oculus Quest headset.

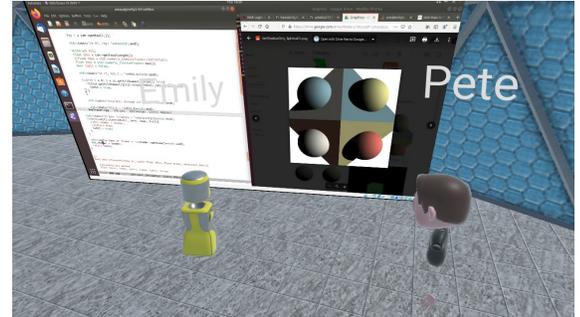


While trying out Hubs by Mozilla, an open-source social VR platform that runs in a browser, Pete was quoted in a recent college web article, "Hubs works great for me, because I can walk around the room just like I would in a regular classroom. I can also see the students' computer screens as they work and talk through things with them." But students do

not need headgear to participate. Here are the avatars of Pete

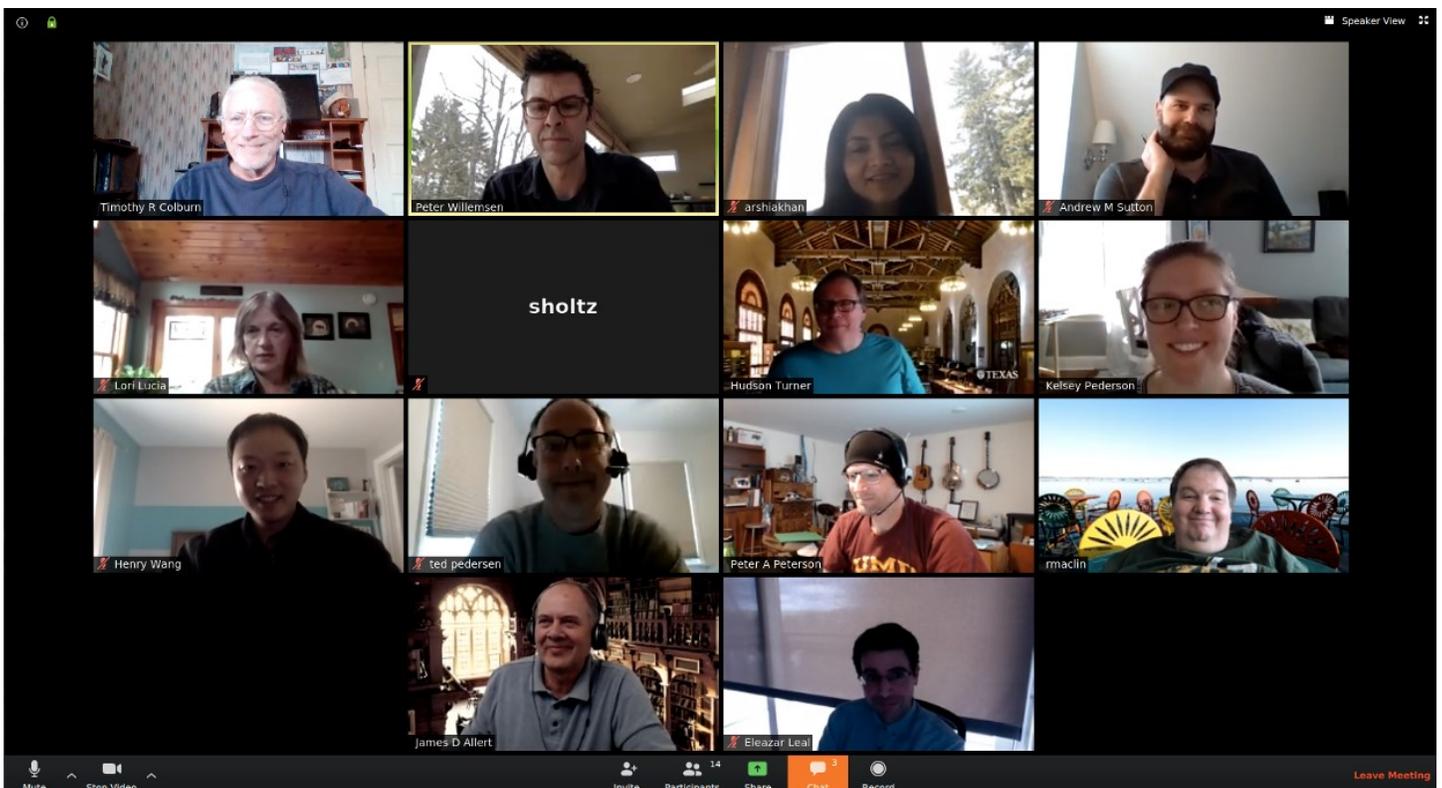
and graphics student Emily Hansson discussing a programming assignment as they appear in a browser.

Perhaps ironically, our experience may hasten the switch to the "active learning" model that has been



promoted for a number of years. For one thing, it has motivated us to turn to collaborative tools like Zoom, Slack, and Hub to make the course experience more inclusive. For another, it has taught us to deliver smaller pieces of content at a time to avoid the disinterest that accompanies the turning of a physical classroom into a virtual one "verbatim," as it were.

Only time will tell, but the new educational model forced on us during Spring Semester 2020 may well improve the UMD computer science learning experience going forward.



UGRAD NEWS CONT'D FROM P. 2

Here is the full list of students receiving BS or BA degrees in 2019-2020:

Anderson, Parker	Elinson, Zach	Krauel, Kevin	Silwal, Sourya
Barck, Spencer	Fagel, Jared Jacob	Kuutti, Kirsi	Smrcka, Westley
Bates, Sam	Gagliardi, David	Lenz, Ryan N	Stark, Lawrence
Benson, Ryan	Ghordlo, Acel	Madison, Tony	Stark, Sarah
Brady, Micah	Grelson, Mitchell	Manokar, Ghoutham	Swift, Chandler
Branson, Luke	Grothaus, Jack	Mewes, Noah	Todalen, Corey
Breidenbach, Kiah	Gruwell, Zach	Mitchell, Grant	Trevizo-Ramos, Perla
Brenhaug, Nolan	Hanson, Isaiah	Mollberg, Mason	VonRueden, Michael
Brewer, Mitchell	Hansson, Emily	Nelson, Stefan	Wang, Zhigang
Cerar, Paul	Hlucny, Joseph	Novak, Garret	White, Frank
Choi, Won	Johnson, Dustin	O'Connell, Jeremy	Wilson, Jacob
Chraibi, Amir	Johnson, Kiersten	Panka, Joe	Winfield, Joseph
Danielson, Nels	Johnson, Lauren	Powers, Carson	Woock, Logan
Derosier, Caleb	Jonas, Alex	Provos, Emily	Wuertz, Thomas
Dewitt, Carter	Jordan, Mitchel	Raskob, Ryan	Ye, Xingjian
DiDomenico, Luke	Kahlbaugh, Jacob	Robinette, Samuel	Zheng, Calvin
Effinger, William	Karlstedt, Adam	Sands, Walter	
Elezovic, Admir	King, Emily	Schirmers, Mitchell	

ACM Club and Digi-key Competition

Each year the ACM Club gathers for meetings about computer science, LAN parties, coding competitions, and faculty presentations. But most importantly they often have pizza.

Digi-key hosts an annual coding competition in Thief River Falls. This year, two teams participated shown below.

Left picture; **Kiah Breidenbach, Sam Robinette, Eli Misner Joseph Hlucny**

Right picture; **Corey Todalen, Stefan Nelson, Hugh Cunningham, Sadaf Rahman**



GRAD NEWS CONT'D FROM P. 3

Ten second-year graduate students received their M.S. degrees. Here are the future graduates in January 2020, presenting their research in the Computer Science VR lab to faculty and fellow peers, shown left to right.

Brandon Geraci featuring his son, Kai.

Saptarshi Sengupta

Muhammad Gulfam

Sumanth Kothapalli

Mahsa Soufineyestani

**Dr. Pete Willemsen,
Director of Graduate
Studies**

Josie Kachelmeier

Jackson Houston

Dale Dowling

Manaswi Mannem

Not pictured,

Hamza Mustafa

With graduation commencement celebration held virtually “Hail to Thee! Class of 2020” we wish all the graduates, best endeavors.



Donate

If you would like to defray the cost of education for a 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>

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