The Department of Computer Science & Engineering at the University of Minnesota presents our

50TH ANNIVERSARY CELEBRATION

November 23, 2019
McNamara Alumni Center
WELCOME

Welcome to our 50th Anniversary Celebration! You may not know everyone present, but you all are part of the Department of Computer Science and Engineering family—our nearest and dearest friends and supporters.

Take the day to mix and mingle with old friends, enjoy the keynote address from Jaime Teevan, celebrate our outstanding alumni award winners Jon Herlocker and Panos Pardalos, and hear stories from faculty members and department leaders on where we’ve come from over the years and where we are headed in the next fifty.

And join us at our reception and poster session, where you will have the chance to visit exhibits highlighting our current research activities. Be sure to take this opportunity to chat with our students who are helping to shape the tech industry in Minnesota. They are all doing incredible things, but it’s best to hear about their research first-hand.

Enjoy this very special day.

SCHEDULE

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 am</td>
<td>Memorial Hall</td>
<td>Registration, continental breakfast, and poster setup</td>
</tr>
<tr>
<td>10:00 am</td>
<td>Memorial Hall</td>
<td>Welcome - Dean Mos Kaveh, State of the Department - Mats Heimdahl</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recognize Distinguished Alumni Awardees</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Jon Herlocker</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Panos M. Pardalos</td>
</tr>
<tr>
<td>10:30 am</td>
<td>Memorial Hall</td>
<td>Introduction of Keynote Jaime Teevan - Loren Terveen</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Keynote address: Focusing on What Matters - Jaime Teevan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Question and answer</td>
</tr>
<tr>
<td>12:00 pm</td>
<td>Memorial Hall</td>
<td>Open lunch seating</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>Memorial Hall</td>
<td>Faculty reflect on the history of the department</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Question and Answer</td>
</tr>
<tr>
<td>4:30 pm</td>
<td>Swain Room, Gateway Room, Johnson Great Room, Commons</td>
<td>Reception, Poster/mingle session (Swain, Gateway, Johnson)</td>
</tr>
</tbody>
</table>

COVER IMAGE

The cover image was originally published in volume 51 of Technolog, a University of Minnesota scientific journal put out by the University’s Association of Engineering Students. The graphic, entitled “Negative Shading,” was part of a series called “Art in Technology” and is an example of computer graphics created in 1971. Technolog editor and U of M student Ronald Reichenberger produced the work using a Fortran design program called Art 1, an early precursor to InDesign, the program used to create this very program you are reading now.
ALUMNI AWARDS

Jon Herlocker is an industry-leading technologist experienced in both on-premises enterprise software and consumer SaaS businesses. He has deep technical experience in multiple areas including designing and operating scale-out distributed systems and applying machine learning and data analytics to decision problems. He also has significant experience and training in human-computer interaction and user experience design.

Prior to co-founding Tignis, he was Vice President and CTO of VMware’s Cloud Management Business Unit. Other positions include CTO of Mozy, and CTO of EMC’s Cloud Services division. Jon is an experienced entrepreneur having founded two other startup companies. He is a former tenured professor of Computer Science at Oregon State University, and his highly-cited academic research work was awarded the prestigious 2010 ACM Software System Award for contributions to the field of recommendation systems.

Jon holds a Ph.D. in Computer Science from the University of Minnesota, and a B.S. in Mathematics and Computer Science from Lewis and Clark College.

Panos Pardalos is a Distinguished Professor and the Paul and Heidi Brown Preeminent Professor in the Departments of Industrial and Systems Engineering at the University of Florida, and a world renowned leader in Global Optimization, Mathematical Modeling, and Data Sciences. He is a Fellow of AAAS, AIMBE, and INFORMS and was awarded the 2013 Constantin Caratheodory Prize of the International Society of Global Optimization.

In addition, Dr. Pardalos has been awarded the 2013 EURO Gold Medal prize bestowed by the Association for European Operational Research Societies and a prestigious Humboldt Research Award (2018-2019).

Dr. Pardalos is also a Member of the Lithuanian Academy of Sciences, the Royal Academy of Spain, and the National Academy of Sciences of Ukraine. He is the Founding Editor of Optimization Letters, Energy Systems, and Co-Founder of the International Journal of Global Optimization, and Computational Management Science. He has published over 500 journal papers, and edited/authored over 200 books. He is one of the most cited authors in computer sciences and has graduated 63 PhD students so far. Details can be found in www.ise.ufl.edu/pardalos.
FOCUSING ON WHAT MATTERS

Over the past 50 years computing has evolved from something that happens on an individual computer to something enabled by a rich network of devices. As a result, it is becoming increasingly possible to observe people’s interactions with computation at scale.

Our ability to learn from these interactions has led to incredibly engaging experiences—but not necessarily more productive ones. As computing transforms every aspect of how people live and work, we need to think carefully about the underlying influence computation has on people’s attention.

There is an opportunity to do more than just not distract people and actually start helping people focus better. This presentation will explore the ways we might make it as compelling and easy to complete an important task as it is to check social media.

BIOGRAPHY

Dr. Jaime Teevan is Chief Scientist for Microsoft’s Experiences and Devices, where she is helping Microsoft create the future of productivity. Previously she was the Technical Advisor to Microsoft’s CEO, Satya Nadella, and a Principal Researcher at Microsoft Research AI, where she led the Productivity team.

Dr. Teevan has published hundreds of award-winning technical articles, books, and patents, and has given keynotes around the world. Her research has earned her the Technology Review TR35 Young Innovator, BECA, Karen Spärck Jones, and SIGIR Test of Time awards. Dr. Teevan holds a Ph.D. from MIT and a B.S. from Yale, and is an affiliate professor at the University of Washington.
BREAKOUT SESSIONS

CAREERS IN ACADEMIA
HERITAGE GALLERY, 1:30 p.m.
Join career academics and professors as they reflect on their journey to and careers at top national and international universities. Panelists:

- Yan Huang, Senior Associate Dean, University of North Texas
- Ajitha Rajan, Lecturer, University of Edinburgh
- Brian Bailey, Professor, University of Illinois
- Getiria Onsongo, Assistant Professor, Macalester College
- Panos M. Pardalos, Paul and Heidi Brown Preeminent Professor, University of Florida
- George Karypis, Moderator and CS&E Distinguished McKnight University Professor

CAREERS IN INDUSTRY
SKI-U-MAH ROOM, 1:30 p.m.
Alumni entrepreneurs and industry professionals share what it took for them to go from CS&E students to leaders in their field. Panelists:

- Jon Herlocker, President and CEO, Tignis, Inc.
- Bonnie Holub, Managing Partner, Practice Lead, Data Science, Americas, Teradata
- Jeffrey Thompson, Senior Manager, Software Engineering, Abbott
- Katie Panciera, Assistant Professor, Milwaukee School of Engineering (former Researcher, Google)
- Joseph Konstan, Moderator, CS&E Distinguished McKnight University Professor, and CSE Associate Dean of Research

ROBOTICS AND VIRTUAL REALITY DEMOS
JOHNSON ROOM, 1:30 p.m.
Immerse yourself in the worlds of robotics and virtual reality with Professors Junaed Sattar, Dan Keefe, and Nikos Papanikolopoulos. Test out cutting-edge underwater robots Minnebot and Edgebot, learn how the Minnesota Robotics Institute will help shape the future of robotics, and see how the IV/Lab blends technology and art with breathtaking VR and visualizations.

- Dan Keefe, CS&E Professor and Director of the Interactive Visualization Lab (IV/Lab)
- Nikos Papanikolopoulos, CS&E McKnight Presidential Professor and Director of the Minnesota Robotics Institute (MnRI)
- Junaed Sattar, CS&E Professor and Director of the Minnesota Interactive Robotics and Vision Laboratory

DECADE PANEL: 50 YEARS OF CS&E
MEMORIAL HALL, 3:00 p.m.
Join four current and one former CS&E faculty, who collectively joined the department in each decade of its existence. Why did they come? What was it like then? How has it changed? And what’s their advice for you? Panelists:

- William (Bill) Franta, CS&E Founder
- Maria Gini, CSE Distinguished Professor
- Nikos Papanikolopoulos, CS&E McKnight Presidential Professor and Director of the Minnesota Robotics Institute (MnRI)
- Dan Keefe, CS&E Professor and Director of the Interactive Visualization Lab (IV/Lab)
- Lana Yarosh, CS&E Land Grant Assistant Professor
- Loren Terveen, Moderator, CS&E Distinguished McKnight University Professor, and Associate Department Head

Department founder Marvin Stein in 1964 (University Archives)
Computer Science and Engineering (CS&E) at the University of Minnesota has come a long way in the past 50 years. We have grown from our humble beginnings as an initiative to manage the computing resources on campus to a department that is expanding at an incredible rate to meet the technology demands of a rapidly-changing world. With each computing and technological revolution, CS&E has been right there educating future tech leaders and pushing the edge of computing excellence.

A NEW DISCIPLINE AND DEPARTMENT

Shortly after World War II, an interest in computing and its application in mathematics, physics, chemistry, and economics developed on campuses across the country—the University of Minnesota was no exception. In 1949, several University departments, along with local powerhouse companies like Honeywell Aeronautics, were making constant use of the University’s Reeves Electronic Analog Computer (REAC), which was state-of-the-art back then. In 1955, the University was gifted 400 hours of usage on the then-highly advanced ERA 1103 from Sperry-UNIVAC, greatly expanding computing resources on campus.

All of this growth led the University to seek a director to manage the technological opportunities that were emerging on campus. Mathematics Professor Marvin L. Stein was appointed this task in 1955. Upon arrival, Stein immediately began the development and instruction of a course in high-speed computation, which some consider to be the start of the University’s computer science curriculum. Over the next 10 years at the University, interest in computing and the acquisition of computing devices continued to grow. The University acquired its first digital computer – a UNIVAC 1103 – in 1958, which led to increased computer use on campus and additional computer classes being offered by the Mathematics department.

By 1967, the increased focus on computational research and education led the University to establish a graduate program for Computer and Information Sciences. In 1969, several students were awarded master’s degrees, and the first doctorate degree in computer science was awarded.

Finally, in the spring of 1970, the University formally established the Department of Computer Science. Stein served as acting department head until the fall of 1971 when Professor J. Ben Rosen replaced him as head of the new department.
DECADES OF EDUCATION AND INNOVATION
Over the last half century, the department has grown rapidly. Some highlights throughout the years include:

1970
• Department founded.

1975
• The department forms the Computer Science Associates (CSA) group.

1981
• Cray Research Inc. endows a $100,000 lecture series.
• The University Supercomputing Institute (MSI) acquires a Cray-1 supercomputer.

1982
• Department hires first female faculty, Professor Maria Gini.

1983
• The department showcases research in its first Research Review Symposium.

1985
• The department receives $3.62 million National Science Foundation (NSF) CER grant.

1987
• The Army awards the Army High-Performance Computing Research Center (AHPCRC) to the University.
• CDC establishes the William Norris Land-Grant Chair in Large-Scale Computing.
• Qwest/U.S. West establishes the Land-Grant Chair in Telecommunications.

1989
• The department moves to its new home in the Electrical Engineering and Computer Science Building (now named Keller Hall).
• CDC establishes the William Norris Land-Grant Chair in Large-Scale Computing.
• Qwest/U.S. West establishes the Land-Grant Chair in Telecommunications.

1996
• The department publishes its first newsletter, then called Home Page, later renamed Soundbyte.

1997
• The department name changes to Computer Science and Engineering.
• CS&E holds its first Open House and Technology Forum, later renamed the Research Showcase.
• Faculty launch the Masters of Science in Software Engineering (MSSE) program.

1998
• The department forms the Women in Computer Science group.

1999
• Ted Johnson receives the first CS&E Distinguished Alumnus Award.
• The University creates an Institute of Technology minor requirement with all core courses from CS&E.

2001
• Linda and Ted Johnson, an architecture and CS&E alumnus, endow the Digital Design Consortium (DDC).

2002
• The Digital Technology Center (DTC) forms.

2004
• Administration of the MSSE Program moves to CS&E.
• The department creates the University of Minnesota Software Engineering Center (UMSEC).

2007
• CS&E joins a collaboration to launch the Bioinformatics and Computational Biology program (BICB).

2013
• The Industry Affiliates Council (IAC) formally begins its first year.

2016
• CS&E launches the M.S. in Data Science program with several collaborating departments, among them the School of Statistics.

2018
• Shepherd Labs is renovated with a focus on robotics.
• CS&E launches the integrated Bachelor’s and Master’s Degree program.

2019
• The Minnesota Robotics Institute (MnRI) is formed.

CONTINUING THE JOURNEY
Since our modest beginnings, the department has made tremendous progress and become one of the most vibrant and interdisciplinary departments in the college, University, and computer science field. Throughout the past five decades, the department has become a top-tier program nationally and awarded more than 7,000 bachelor’s, 3,000 master’s, and 700 doctoral degrees. CS&E faculty and graduates have formed more than 200 companies in Minnesota and beyond.

There has never been more of a need for our leadership than there is today. Computer science and information technology have become critical to all fields of work and all aspects of our society. Our graduates are in high demand, and it is not only because of the formal education they acquire here, but also because of the collaborative and collegial culture we have nurtured in CS&E; a culture in which collaborative problem solving and rigorous, experiential learning lead to true innovation—both in and outside of the classroom.
We would like to thank the following individuals and foundations who have supported the Department of Computer Science & Engineering between July 1, 2018 and November 11, 2019:

David C. Abramson and C. Duffy Larsen-Abramson · Adobe Systems Inc. · Arthur Allen · Ameriprise Financial Inc. · Logan Anbinder · Steven G. Anderson · Apple Inc. · Lesley Atwood and Richard Smith · Ana Bahr · Michelle R. and Phillip J. Barry · Lee J. Barrington · Emily Rose Barter · Benevity Community Impact Fund · Kalli M. Bennett and Steven C. Peterson · Amy Blackmond and John Strait · George H. and Ayuko U. Boomer · Boston Scientific · Sandy Bot-Miller and John C. Miller · Carole A. Broad and Steven T. Vinge · James E. Brovelet · Emanuel and Teri Calderon · Nyenda N. Carlis · C. H. Robinson International Inc. · Peter D. Clark and Molly McBeath · Howard B. Coleman · Ralph M. Conrad · Michele L. Dahlberg · John J. and Wendy L. De Rung · Joyce M. Deeb · David W. DeHerder, Jr. · Lori L. Dietrich and Steven J. Piazza · Pamela M. and Robin S. Ehrlich · Michael D. Elledstar · Steven R. and Roxanne M. Englund · Ernst & Young Foundation · ExxonMobil Corp. · Facebook Inc. · Mattia Fazzini · John J. Feigal · Field Nation · Brendan Foote · FutureWei Technologies Inc. · Julie L. Ganz · General Mills Inc. · Nina Garces and Joseph E. Gliniecki · Google Inc. · Faith R. Goenner · Teofilo F. Gonzalez · Lee R. Gordon · Kathy Hacmac and Gary Johnson · T. Hadjiyanni and N.P. Papanikolopoulos · Nancy S. and Richard J. Hedger · Mats P. Heimdahl · Lt. Col. Patrick A. Hillmeyer · Steven N. Hidy · Julieanna and Aaron Hinck · Ann Marie and David L. Hintz · Huawei Technologies · IBM Corp. · IBM International Foundation · Jennifer M. and Kurt A. Indermauer · Ingersoll-Rand Charitable Foundation · Intel Foundation · Ravi Janardan · Sandra L. Johnson · Verlyn M. Johnson · Carol Judd · Sheela Kadkhodaian and Reza Sorous · Suneeeta Kamana and Srihari Nelakuditi · George Karypis · Colleen T. Kelly · Marlys A. Kohne · Carol Kramer · Renu and Vipin Kumar · Shyong K. Lam · Kristopher T. Lange · Eunice and Yan Lee · Shelley J. and Chris G. Lieder · Lishin Lin · J. P. Little and Lynn Mattson Little · Tina and Chris Lund · Minh-Tam T. Lu and Luong B. Tran · Jessica M. Melnhchuk · Kent B. Mein, Jr. · Medtronic Inc. · Kevin J. Meehan · Microsoft Corp. · Mozilla · Rory G. Mulveney · Connie B. Murray · Chad and Sasha Myers · David Nassimi · National Center for Women & Information Technology · Neuromeka Co. Ltd. · Robert S. Ogren and Carrie Mikulich Ogren · Elizabeth J. Olson · Osmose Utilities Services Inc. · Sally L. Palm · Paul N. and Andrea K. Pazandak · Lien A. Phung · James and Lynne Plasek · Joseph M. Plasek · Polaris Foundation · Linda L. and Daniel Poznanovic · Prudential Foundation · Jon M. Rask · Alina and Adrian Rimbu · Michael J. & Shari A. Rogalski · Richard J. Roiger · Frederick W. Roos · Sandra R. and James L. Rutzick · Yousef Saad · Ahmed H. and Marilyn R. Sameh · Matthew E. Sanders · Richard J. and Dorothy A. Seebach · John J. Shackleton · Sleep Number Corp. · Smart Information Flow Technologies · Stephen M. Sohn · Gayle P. Solheim · J. Tyler and Karen L. Sperry · Emily W. and Joseph M. Strand · Jiahuaran Sun · Ji Sun · Target Corp. · Jill A. and Vicraj T. Thomas · Turnitin LLC · Venkateswaran Udayasankar · Unisys Corp. · UnitedHealth Group · Ethan C. Waytas · Jon Weissman and Susan Lawrenz-Smith · Wells Fargo Foundation · Kevin D. Wendt · Benjamin M. Weseloh · J. Andrew and Gary S. Whitford Holey · Svetlana Yarosh · Pen-Chung Yew · YourCause LLC · Jihun Yu · Qi Zhao

* Names in gold made gifts of $1,000 or more