The mission of the ACIA is to create a scholarly environment for teaching and research in computing, information, and automation that is a reflection of contemporary technological innovation in industry and society at large.
Annual Report
July 1, 2017 - June 30, 2018

Table of Contents

From the Director .................................................. 3
Executive Summary ............................................... 4
ICC By the Numbers ............................................. 5-7
ICC News ............................................................. 8-10
Active Grants and Contracts ................................. 11-14
Pending Research Proposals ................................. 15-16
Center for Cyber-Physical Systems (CPS) ............. 17-22
Center for Cybersecurity (CyberS) ....................... 23-26
Center for Data Sciences (DataS) ......................... 27-34
Center for Human-Centered Computing (HCC) .... 35-38
Center for Scalable Architectures and Systems (SAS) 39-42
ICC Member Directory ........................................ 43-44
From the Director

Dear Friends,

I hope that you are all enjoying the first semester of AY 2018-19. With all that’s happening in the realm of computing and cybersystems—from the U.S. President’s Executive Order on Artificial Intelligence to the announcement of the formation of a new College of Computing at Michigan Tech—we have plenty to dig into in this new calendar year!

First, let me say that it is an honor that I was supported and appointed as the new ICC Director in August 2018. Thank you to all the ICC members for supporting my nomination; I am very pleased to serve in this position for the next three years. As you know, the ICC was formed by Dr. Min Song three years ago to promote research and learning experiences in computing and cybersystems for the benefit of Michigan Tech and society. I would like to thank Dr. Song for his vision and leadership over the last three years; the ICC saw significant growth in that time period, far exceeding initial goals.

Sincere thanks and congratulations as well to the ICC’s exceptional group of member faculty and staff and your scholarship and research contributions in the fields of computing. Our research expenditures in FY18 were $1.9 million and we were awarded nearly $3 million in new projects. We currently have $7.3 million in active grants and over $10 million in pending proposals. These are very strong indicators of our successes.

As ICC director, my aim is continued growth focused on fostering innovation and new discoveries in computing, encouraging interdisciplinary and multidisciplinary collaborations across campus and with other institutions, and growing the ICC’s national and international reputation and visibility.

I would like to draw attention to a few new projects. Shane Mueller, HCC, was awarded a DARPA XAI (explainable AI) project amongst a very competitive field. This project is in the pertinent field of how to create artificial intelligence that is not only effective but also understandable or interpretable. Several more ICC members were successful in obtaining new grants from NSF. Of note is Ye Sun, CPS, who was awarded an NSF CAREER award for her research on wearable electronics—Congratulations Dr. Sun! Lastly, I would like to congratulate Kevin Trewartha, HCC, for his project funded by the U.S. Dept. Health and Human Services. Dr. Trewartha is investigating behavior markers of cognitive impairment and Alzheimer’s disease. And congratulations to all our members who received new funding in FY18. Keep up the great work!

Finally, please join me in welcoming Karen Johnson, our new Communications Director. Karen comes to the ICC from Michigan Tech’s Office of Advancement.

Timothy C. Havens
FY18 Executive Summary

University Centers and Institutes
The ICC is one of more than 50 Centers and Institutes at Michigan Tech, which are intended to encourage interdisciplinary research projects larger in scope and/or breadth than typically undertaken by individuals or small intradepartmental groups. To encourage these collaborative endeavors, the University provides incentives, including increased returns on research overhead, access to limited submission proposal opportunities, and support from the office of the Vice President for Research. In return, Centers and Institutes provide a positive return on investment (ROI) to the University, support the University's strategic direction, and provide a positive contribution to the University overall.

History
The Alliance for Computing, Information, and Automation (ACIA), founded in 2015, is an agreement among the departments of Electrical and Computer Engineering and Computer Science and the School of Technology to cooperate in academic program development and collaborate in research aimed at solving problems of national importance related to cybersecurity and computing. The Institute of Cybersystems and Computing (ICC) leads and promotes the research mission of the ACIA.

ICC Organization
The ICC is composed of five research centers, each pursuing research in a different computing discipline. A director and co-director provide Institute leadership, while associate directors lead the five Centers.

ICC Membership
The ICC’s 50 members are from 5 schools and colleges and 15 departments.

The Michigan Tech Strategic Plan
The work of the ICC embodies in particular Goal 3 of the University’s strategic plan, ”Research, scholarship, entrepreneurship, innovation, and creative work that promotes a sustainable, just, and prosperous world.” Further, President Rick Koubek’s “Tech Forward” vision, which aims to position Michigan Tech as an internationally recognized academic thought leader in the Fourth Industrial Revolution, is fully embraced by the ICC and its membership. In fact, the 2014 proposal to create the ICC articulates as its vision the need to prepare for and respond to the Fourth Industrial Revolution.

Active Awards
ICC active grants number 29, with a total dollar value of $7.3M. Of those, 6 were awarded in FY14, FY15, and FY16; 9 were awarded in FY17, 12 were awarded in FY18, and 2 were awarded in FY19.

Proposal Activity
21 ICC proposals led by 14 ICC members as PIs, are pending, with a total value of $10.2M: 9 submitted by PIs in Electrical and Computer Engineering; 5 in Computer Science; 4 in School of Technology; 2 in Cognitive and Learning Services, and 1 in Mechanical Engineering-Engineering Mechanics.

Scholarship and Service
As detailed later in this report, ICC members are leaders in their research and academic fields, on and off campus. In FY18 ICC members collectively attended dozens of national and international academic meetings and conferences; published more than 150 journal articles, conference papers, book chapters, and books; presented dozens of papers, talks, and seminars; and provided prodigious professional service of many kinds to both Michigan Tech and professional and scientific societies and organizations of all kinds.

Education and Outreach Activities
Among FY18 outreach activities, the ICC hosted 16 scholars and creative professionals for a series of distinguished lectures and seminars and hosted the 24th Int’l Conference on Auditory Display (ICAD), June 10-15, 2018, on Michigan Tech’s campus.

From the Editor
This report highlights the activities of the Institute of Cybersystems and Cybersecurity (ICC) for the period July 1, 2017 to June 30, 2018. The data and information in this report were gathered from a number of sources, including reports from the Sponsored Operations office, the Computer Science Department office, the Electrical and Computer Engineering Department office, ASPIRE, Digital Measures, Banner, and information shared by ICC Center directors and researchers. Every effort has been made to ensure accuracy and completeness. This report was prepared by Karen S. Johnson, Communications Director for the ACIA/ICC.

¹as of 1/17/19
²as of 2/23/19
## ICC by the Numbers

### Active Grants
- **29**
- **$7.3M**

### New Grants
- **18**
- **$2.9M**

### Research Expenditures
- **$1.9M**

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### Research Activities by Year

<table>
<thead>
<tr>
<th>Research Activities</th>
<th>Year 1 Goal</th>
<th>Year 2 Goal</th>
<th>Year 3 Goal</th>
<th>Year 3 Results</th>
<th>Year 4 Goal</th>
<th>Year 5 Goal</th>
<th>Total</th>
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<tbody>
<tr>
<td>New Research Awards</td>
<td>1.6M</td>
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<td>2.87M</td>
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<td>Research Expenditures</td>
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<td>1.7M</td>
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<td>1.88M</td>
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### Number of New Research Awards

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<th>Year 3</th>
<th>Year 3 Results</th>
<th>Year 4</th>
<th>Year 5</th>
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<td>6</td>
<td>7</td>
<td>8</td>
<td>18</td>
<td>9</td>
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### Number of Proposals Submitted

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<th>Year 2</th>
<th>Year 3</th>
<th>Year 3 Results</th>
<th>Year 4</th>
<th>Year 5</th>
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### External Visibility

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<th>Year 4 Goal</th>
<th>Year 5 Goal</th>
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<td>6</td>
<td>2</td>
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<td>Hosted Talks and Seminars</td>
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<td>12</td>
<td>16</td>
<td>14</td>
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<td>Demos Organized</td>
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<td>Member Leadership²</td>
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<td>44</td>
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<td>22</td>
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¹Books, Book Chapters, Journal Articles, Reports, Conference Papers
²Technical Committees, Journal Editorships, Conference Chairs
The Alliance for Computing, Information, and Automation aims to encourage a scholarly environment at Michigan Tech that aligns with contemporary technological innovation in industry and society.

Funding Projections by Center

As of January 18, 2019

IRAD Dollars Spending - FY18
Total FY18 Spending: $75,630

IRAD/ICC $21,572
Cybers $1,541
SAS $2,092
HCC $5,880
DataS $33,044
CPS $11,901
# ICC by the Numbers

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<th>CATEGORY</th>
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<td>Academic Awards</td>
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<tr>
<td>Books &amp; Book Chapters</td>
<td>11</td>
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<tr>
<td>Conference Chairs</td>
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<td>Conference Committees</td>
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<td>Conference Paper Reviewer</td>
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<td>Conference Presentations</td>
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<td>Conference Proceedings</td>
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<td>Conferences Hosted</td>
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<td>Distinguished Lecturers</td>
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<td>Grant Reviewer</td>
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<td>Invited Member Talks</td>
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<td>Journal Articles</td>
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<td>Journal Editorships</td>
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<table>
<thead>
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<th>CATEGORY</th>
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<td>Journals Reviewed</td>
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<td>Media Attention: External</td>
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<td>Reports</td>
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<td>Sponsorships</td>
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<td>Students Supported¹</td>
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<td>Technical Committees</td>
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<tr>
<td>University Service by ICC Members:</td>
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<td>Advisor to Club or Org.</td>
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<td>Advisory Groups</td>
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<td>Committees</td>
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<td>Other</td>
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<td>Pro Bono Prof. Services</td>
<td>2</td>
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<tr>
<td>Search Committees</td>
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</table>

¹Tuition Awards and Hourly Wages
At its annual retreat, April 20, 2018, Achievement Awards were presented to five ICC members for their outstanding research and contributions in 2017-18. The recipients are, pictured above, left to right, Zhenlin Wang (SAS), Zhaohui Wang (CPS), Laura Brown (DataS), Keith Vertanen (HCC), Yu Cai (CyberS), along with founding ICC director Min Song.

**2018 ICC Achievement Awards**

The ICC honored five members for their outstanding research and contributions in 2017-18. The recipients are pictured above, left to right: Zhenlin Wang (SAS), Zhaohui Wang (CPS), Laura Brown (DataS), Keith Vertanen (HCC), Yu Cai (CyberS), along with founding ICC director Min Song.

**24th Int’l Conf. on Auditory Display (ICAD)**

The 24th International Conference on Auditory Display (ICAD) took place on Michigan Tech’s campus June 10-15, 2018. Hosted by the departments of Cognitive and Learning Sciences and Computer Science, the College of Sciences and Arts, and the ICC’s Center for Human-Centered Computing, the theme of the conference was, “Sonification as ADSR: Art, Design, Science, Research.” Conference activities included presentations, workshops, tutorials, posters, a banquet, and a Sonification Concert at the Rozsa Center. M. "Philart" Jeon, pictured below, was General Chair of the conference’s organizing committee.

- 80 Attendees
- 29 Full Papers
- 9 Extended Abstracts
- 6 Sonification Concert Pieces
- 4 Installation Pieces
- 106 Authors / 13 Countries (U.S., Italy, Japan, Germany, Chile, Bangladesh, Canada, UK, Austria, Spain, Finland, Sweden, Korea)
- 29 participants in NSF-supported ThinkTank Doctoral Colloquium

**ICC Hosts TechTalk**

The ICC hosted its first TechTalk on February 16, 2018. Presenters had up to five minutes to explain their research. The TechTalk was also a platform for eight researchers to present their proposals for the 2018 Paul Williams Seed Grant Competition. Topics included exascale computing, marine mobile networking, effective clustering algorithms, cybersecurity, on-body sensing, and IoT implementation. See page 9 for more information about the Williams Seed Grants.

**HCC Demo Day**

The ICC Center for Human-Centered Computing hosted HCC Demo Day Nov. 2, 2017, on campus. Activities pivoted around the theme, "Designing with humans in mind." Activities included a talk by ICC Distinguished Speaker Dr. Betty Whitaker and demos of student projects in the HCC’s Mind Music Machine Lab, Smart City Technology Lab, Future Interactions Lab, and Virtual Reality Lab. The event was held in conjunction with the 2017 World Usability Day, an internationally-celebrated single day of events that brings together communities of professional, industrial, educational, citizen, and government groups for a common objective: to ensure that the services and products important to life are easier to access and simpler to use.
Visiting Professors

Generously funded by the House Family Foundation, the ICC hosted 2 visiting professors in FY18.

Dr. Steven Y. Goldsmith
held dual appointments in the Departments of Mechanical Engineering-Engineering Mechanics and Electrical and Computer Engineering. A Senior Fellow of the Technological Leadership Institute at the University of Minnesota, for 32 years
Dr. Goldsmith worked at Sandia National Laboratories, retiring in 2011 as a Distinguished Member of the Technical Staff. While at Sandia, Dr. Goldsmith’s work included developing information and control systems for applications including nuclear weapon testing, particle beam accelerators, and seismic array monitoring. While at Michigan Tech, Dr. Goldsmith worked on research using machine learning technology to diagnose anomalies in industrial control systems through co-simulation, primarily to identify malware in standardized control system architectures.

Dr. Zafar Iqbal
served as a Visiting Research Assistant Professor in the Department of Computer Science. Dr. Iqbal completed a Ph.D. in electrical engineering and computer science at the Gwangju Institute of Science and Technology (GIST), South Korea, in 2017.
He has worked for ZTE Corporation, Shanghai R&D Center, China; Vieworks Co. Ltd. Korea, and Nokia Siemens Networks Co. Ltd., Shanghai. While on campus, Dr. Iqbal collaborated with the Center for Cyber-Physical Systems on underwater acoustic communication systems research, worked on developing a convex optimization problem solver algorithm, submitted an NSF research grant proposal on the topic of channel estimation and cooperation in vehicular networks, and published three research papers.

Paul Williams Seed Grant Recipients

Michigan Tech alumnus Paul Williams supported two seed grants of $50K each in FY18. The competitive grants gave researchers the opportunity to develop seed projects that would eventually become viable and attractive for external grant funding. Seed grants like these are part of the ICC’s commitment to fostering new ideas and investing in groundbreaking research.

Center for Cyber-Physical Systems
Zhaochui Wang, Assistant Professor, ECE
Nina Mahmoudian, Adjunct Professor, ME-EM

A Low-Cost Marine Mobile Networking Infrastructure
Existing research to understand underwater acoustic communication networks relies on human-operated surface ships or cost-prohibitive autonomous underwater vehicles (AUV). And, due to the cost barrier, academic research evaluation is often limited to computer simulations. Recognizing a gap in the research, Zhaochui Wang and Nina Mahmoudian combined their areas of expertise—underwater acoustic communications and low-cost marine robotics and AUVs—and took their research beneath the surface to develop a low-cost marine mobile infrastructure and investigate the challenges and possible solutions in engineering a leading-edge AUV communication network.

Center for Human-Centered Computing
Scott Kuhl, Associate Professor, CS
Keith Vertanen, Assistant Professor, CS

Appropriating Everyday Surfaces for Tap Interaction
What if an everyday surface, like a table, could be transformed into a rich, interactive surface that can remotely operate things like computers, entertainment systems, and home appliances? That’s what ICC members Keith Vertanen and Scott Kuhl, along with two student researchers, set out to do with a $50K Williams Seed Grant. Their outcomes included a prototype virtual keyboard that supports typing at rates comparable to a touchscreen device; the first-ever acoustic sensing algorithm that infers a continuous two-dimensional tap location; and novel statistical models that quickly adapt to individual users and varied input surfaces.
In FY18 the ICC hosted 16 eminent scholars and creative professionals for a series of distinguished lectures and seminars in the fields of computing, facilitating the exchange of state-of-the-art research results and discussions about future research directions.

**Tom Hou**

**Kenneth M. Hopkinson**

**Indrajit Ray**

**Matthew Valenti**

**Robert Hoffman**

**Rishad Shafik**

**Mohammed Atiquzzaman**

**Shuai Wang**

**Andrew Ginter**

**James M. Keller**
Curators Prof., Electrical Engineering and Computer Science Dept., Univ. of Missouri, “Recognition Technology: Lotfi’s look to the future from the late 1990s,” Mar. 9, 2018.

**Elizabeth Veinott**

**Richard Brown**

**Elizabeth Whitaker**

**Deming Chen**

**Kang G. Shin**

**Jie Wu**
Active Grants and Contracts

Active grants and contracts number 29, with total awards of $7,308,316.

Of all active awards, 5 were submitted by PIs in Cognitive and Learning Sciences (CLS); 8 by Computer Science (CS); 12 by Electrical and Computer Engineering (ECE), 2 by Mechanical Engineering-Engineering Mechanics (ME-EM), and 2 by the School of Technology (SoT).

PI: Jeremy P. Bos, DataS, ECE
Title: Imaging Theory and Mitigation in Extreme Turbulence-Induced Anisoplanatism
Sponsor: U.S. Dept. of Defense
Award/Duration: $246,475 / 3 Yrs.
Date: 4/21/17

PI: Jeremy P. Bos, DataS, ECE
Co-PI: Darrell L. Robinette, ME-EM
Title: Robust Terrain Identification and Path Planning for Autonomous Ground Vehicles in Unstructured Environments
Sponsor: University of Michigan/ U.S. Dept. of Defense
Award/Duration: $91,964 / 1.5 Yrs.
Date: 4/12/18

PI: Yu Cai, CyberS, SoT
Title: Developing Hands-on Cybersecurity Curriculum with Real-world Case Analysis
Sponsor: U.S. Dept. of Defense
Award/Duration: $149,184 / 1.5 Yrs.
Date: 3/31/17

PI: Yu Cai, CyberS, SoT
Co-PI: Kedmon N. Hungwe, CLS
Title: The Development and Assessment of Advanced Cybersecurity Curriculum
Sponsor: U.S. Dept. of Defense
Award/Duration: $322,002 / 2 Yrs.
Date: 9/14/17

PI: Zhuo Feng, SAS, ECE
Title: CAREER: Leveraging Heterogeneous Manycore Systems for Scalable Modeling, Simulation and Verification of Nanoscale Integrated Circuits
Sponsor: Nat’l Science Foundation
Award/Duration: $400,000 / 5 Yrs.
Date: 6/10/16

PI: Zhuo Feng, SAS, ECE
Title: SHF: Small: Scalable Spectral Sparsification of Graph Laplacians and Integrated Circuits
Sponsor: Nat’l Science Foundation
Award/Duration: $450,000 / 3 Yrs.
Date: 11/30/15

PI: Timothy C. Havens, DataS, ECE
Co-PI: Timothy J. Schulz, DataS, ECE
Title: Distributed Array Processing for Aperture Level STAR
Sponsor: Massachusetts Institute of Technology/U.S. Dept. of Defense
Award/Duration: $50,000 / 1.5 Yrs.
Date: 1/9/18

PI: T. Ph. Jeon, HCC, CLS
Title: Development of the Safety Assessment Technique for Take-Over in Automated Vehicles
Sponsor: Korea Automobile Testing and Research Institute
Award/Duration: $161,972 / 1.5 Yrs.
Date: 6/5/17

PI: T. Ph. Jeon, HCC, CLS
Title: ThinkTank: Doctoral Consortium at ICAD 2018
Sponsor: Nat’l Science Foundation
Award/Duration: $20,000 / 1 Yr.
Date: 4/12/18

PI: Jean Mayo, CyberS, CS
Co-PI: Ching-Kuang Shene, CS
Title: EDU: Collaborative: VACCS-Visualization and Analysis for C Code Security
Sponsor: Nat’l Science Foundation
Award/Duration: $130,001 / 3 Yrs.
Date: 9/8/15
ICC OBJECTIVE 1: BRING FACULTY AND STUDENTS TOGETHER TO DISCOVER INNOVATIVE NEW KNOWLEDGE IN THE FIELD OF COMPUTING.

Active Grants and Contracts by Principal Investigator
Active Grants and Contracts

Cyber-Physical Systems (CPS) Center awards total $2.28M; Cybersecurity (CyberS), $600K; Data Sciences (DataS), $810K; Human-Centered Computing (HCC), $1.06M; and Scalable Architectures and Systems (SAS), $2.56M.

CONTINUED FROM PREVIOUS PAGE

PI: Soner Önder, SAS, CS
Title: XPS: Full: FP: Collaborative Research: Sphinx: Combining Data and Instruction Level Parallelism through Demand Driven Execution of Imperative Programs
Sponsor: Nat’l Science Foundation
Award/Duration: $575,876 / 4 Yrs.
Date: 8/18/16

PI: Sumit Paudyal, CPS, ECE
Title: Packetized Energy Management: Coordinating Transmission and Distribution
Sponsor: University of Vermont/U.S. Dept. of Energy
Award/Duration: $351,339 / 3 Yrs.
Date: 8/29/16

PI: Elena Semouchkina, CPS, ECE
Title: Developing Anisotropic Media for Transformation Optics by Using Dielectric Photonic Crystals
Sponsor: Nat’l Science Foundation
Award/Duration: $337,217 / 3 Yrs.
Date: 8/24/17

PI: Min Song, CPS, CS
Co-PI: Zhaohui Wang, CPS, ECE
Title: EAGER: NeTS: Under-Ice Mobile Networking: Exploratory Study of Network Cognition and Mobility Control
Sponsor: Nat’l Science Foundation
Award/Duration: $299,716 / 3 Yrs.
Date: 8/17/15

PI: Ye Sun, CPS, ME-EM
Co-PI: Shiyan Hu, CS
Title: Understanding and Mitigating Triboelectric Artifacts in Wearable Electronics by Synergic Approaches
Sponsor: Nat’l Science Foundation
Award/Duration: $330,504 / 3 Yrs.
Date: 6/15/17

PI: Chee-Wooi Ten, CPS, ECE
Co-PI: Yeonwoo Rho, Math
Title: CPS: Medium: Collaborative Research: An Actuarial Framework of Cyber Risk Management for Power Grids
Sponsor: Nat’l Science Foundation
Award/Duration: $348,866 / 3 Yrs.
Date: 8/30/17

PI: Kevin M. Trewartha, HCC, CLS
Co-PI: Shane T. Mueller, HCC, CLS
Title: Motor Learning as a Sensitive Behavioral Marker of Mild Cognitive Impairment and Early Alzheimer’s Disease
Sponsor: U.S. Dept. of Health & Human Services / NIH
Award/Duration: $455,884 / 3 Yrs.
Date: 6/25/18

PI: Keith D. Vertanen, HCC, CS
Title: CAREER: Technology Assisted Conversations
Sponsor: Nat’l Science Foundation
Award/Duration: $96,108 / 5 Yrs.
Date: 3/23/18
ICC OBJECTIVE 2: FOSTER INTERDISCIPLINARY COLLABORATIONS AND ENABLE FACULTY TO DEVELOP MULTIDISCIPLINARY PROPOSALS AND CONDUCT IMPACTFUL RESEARCH WHICH OTHERWISE WOULD NOT BE POSSIBLE.

PI: Keith D. Vertanen, HCC, CS
Title: REF-RS: Automatic Speech Recognition using Deep Neural Networks
Sponsor: Michigan Tech
Award/Duration: $31,268 / 1 Yr.
Date: 6/1/18

PI: Zhenlin Wang, SAS, CS
Title: CSR: Small: Effective Sampling-Based Miss Ratio Curves: Theory and Practice
Sponsor: Nat’l Science Foundation
Award/Duration: $390,876 / 3 Yrs.
Date: 8/8/16

PI: Jianhui Yue, SAS, CS
Title: SHF: SMALL: Collaborative Research: Improving Reliability of In-Memory Storage
Sponsor: Nat’l Science Foundation
Award/Duration: $176,876 / 2 Yrs.
Date: 7/14/17
Research Proposals

Pending research proposals number 21: 9 PIs are in Electrical and Computer Engineering; 5 in Computer Science; 4 in School of Technology; 2 in Cognitive and Learning Services, and 1 in Mechanical Engineering - Engineering Mechanics.

PI: Jeremy P. Bos, DataS
Dept: Electrical and Computer Engineering
Title: STTR: SMET Tele-Operator Feedback Systems
Sponsor: GS Engineering/U.S. DOD
Award Req. / Duration: $45,019 / 1 Year

PI: Yu Cai, Cyber S
Dept: School of Technology
Title: CASE: A Cybersecurity Learning Framework with Case Analysis in Security Education
Sponsor: National Science Foundation
Award Req. / Duration: $299,480 / 2 Yrs.

PI: Ali Ebnenasir, SAS
Dept: Computer Science
Sponsor: National Science Foundation
Award Req. / Duration: $498,253 / 3 Yrs.

PI: Zhuo Feng, SAS
Dept: Electrical and Computer Engineering
Title: SHF: Small: Spectral Reduction of Large Graphs and Circuit Networks
Sponsor: National Science Foundation
Award Req. / Duration: $500,000 / 3 Yrs.

PI: Daniel R. Fuhrmann, SAS
Dept: Electrical and Computer Engineering
Title: Trailer Angle Detection using Multiple Automotive Radars
Sponsor: Ford Motor Co.
Award Req. / Duration: $202,567 / 2 Yrs.

PI: Timothy C. Havens, DataS
Dept: Electrical and Computer Engineering
Title: Efficient CFD Enabled by Deep Learning
Sponsor: ThermoAnalytics Inc. / U.S. DOD
Award Req. / Duration: $30,000 / 1.5 Yrs.

PI: Timothy C. Havens, DataS
Dept: Electrical and Computer Engineering
Title: NPT-03/04: Localization, Tracking, and Classification of On-Ice Underwater Noise Sources using Machine Learning
Sponsor: U.S. DOD
Award Req. / Duration: $299,533 / 3 Yrs.

PI: Guy C. Hembroff, Cyber S
Dept: School of Technology
Title: Improving Behavioral Health Patient Engagement Access and Care Management in Rural Michigan Through the Use of an Integrated Personal Health Library Model and mHealth to Promote Self Management and Coordinated Care
Sponsor: Mich. Health Endowment Fund
Award Req. / Duration: $486,717 / 2 Yrs.

PI: Soner Önder, SAS
Dept: Computer Science
Title: SHF: Medium: Collaborative Research: Synchronously Controlled Asynchronous Lane Execution (SCALE)
Sponsor: National Science Foundation
Award Req. / Duration: $599,544 / 3 Yrs.

Total Pending Proposals $10.1M
Proposals

ICC OBJECTIVE 3: CREATE A PLATFORM FOR BROAD SETS OF NATIONAL AND INTERNATIONAL COLLABORATIONS TO MAKE VALUABLE CONTRIBUTIONS TO THE FIELD.

ICC OBJECTIVE 4: PROMOTE THE EXTERNAL VISIBILITY OF THE ALLIANCE FOR COMPUTING, INFORMATION, AND AUTOMATION (ACIA).

Pending Proposals by Center

PI: Soner Önder, SAS
Dept: Computer Science
Title: SHF: Small: Collaborative Research: Applying Branch and Control Dependence Elimination (Alpha)
Sponsor: National Science Foundation
Award Req. / Duration: $249,488 / 3 Yrs.

PI: Sumit Paudyal, CPS
Dept: Electrical and Computer Engineering
Title: Resilient Distribution Grids (ResiGrids): An Open-source Multi-timescale Planning and Operational Framework
Sponsor: U.S. Dept. of Energy
Award Req. / Duration: $1,901,770 / 3 Yrs.

PI: Ye Sun, CPS
Dept: ME-EM
Title: Situational Awareness Monitoring in Underground Mines
Sponsor: University of Michigan-Michigan Space Grant Consortium / NASA
Award Req. / Duration: $5,000 / 1 Year

PI: Kevin M. Trewartha, HCC
Dept: Cognitive and Learning Sciences
Title: Motor Learning as a Sensitive Behavioral Marker of Mild Cognitive Impairment and Early Alzheimer’s Disease
Sponsor: U.S. DHHS
Award Req. / Duration: $466,373 / 3 Yrs.

PI: Elizabeth S. Veinott, HCC
Dept: Cognitive and Learning Sciences
Title: Exploring Word Games for Learning Science Concepts
Sponsor: U.S. DOE
Award Req. / Duration: $1,351,664 / 4 Yrs.

PI: Keith D. Vertanen, HCC
Dept: Computer Science
Title: CHS: Small: Rich Surface Interaction for Augmented Environments
Sponsor: National Science Foundation
Award Req. / Duration: $499,552 / 3 Yrs.

PI: Seyed A. Zekavat, CPS
Dept: Electrical and Computer Engineering
Title: Mobile Multiband Power Beaming
Sponsor: University of MD / U.S. DOD
Award Req. / Duration: $237,133 / 2 Yrs.

PI: Seyed A. Zekavat, CPS
Dept: Electrical and Computer Engineering
Title: RF-Based UXO, Tunnel, and Contaminated Soil Detection
Sponsor: U.S. Dept. of Defense
Award Req. / Duration: $1,696,716 / 3 Yrs.
Center for Cyber-Physical Systems

TECHNICAL COMMITTEES

Ye (Sarah) Sun

Sumit Paudyal

Jinshan Tang
Co-Chair, IEEE SMC Technical Committee on Information Assurance and Intelligent Multimedia-Mobile Communications, 2016-present.

Kuilin Zhang
Transportation Research Board AT015 Committee Freight Transportation Planning and Logistics Committee, 2013-2019.

PROFESSIONAL SERVICE

Zhen Liu
Foundation and Structure Committee, American Society of Civil Engineers, Cold Regions Engineering Division, 2017-present.
Frozen Ground Committee, American Society of Civil Engineers, Cold Regions Engineering Division, 2017-present.
Bituminous Material Committee, American Society of Civil Engineers, 2014-present.
Seasonal Climatic Effects on Transportation Infrastructure Committee, AFP50, Transportation Research Board, 2013-present.
Engineering Geology and Site Characterization Committee, American Society of Civil Engineers, Geo-Institute, 2011-present.
Unsaturated Soils Committee, American Society of Civil Engineers, Geo-Institute, 2011-present.
Committee on Physicochemical and Biological Processes in Soils, AFP40, Transportation Research Board, 2009-present.
Ye (Sarah) Sun
Rapid Session Chair, IEEE Body Sensor Networks (BSN) Conf. 2018, Mar. 4-7, 2018, Las Vegas, NV.
THE CENTER FOR CYBER-PHYSICAL SYSTEMS ADDRESSES THE CLOSE INTERACTIONS AND FEEDBACK LOOP BETWEEN THE EMBEDDED CYBER COMPONENTS FOR COMPUTING AND CONTROL AND THE DYNAMIC PHYSICAL COMPONENTS THAT INVOLVE MECHANICAL COMPONENTS, HUMAN ACTIVITIES, AND SURROUNDING ENVIRONMENTS.

**Jinshan Tang**
Organizing Committee, 24th Int’l Conf. on Mechatronics and Machine Vision in Practice (M2VIP), Nov. 21-23, 2017.

**Zhaohui Wang**
Co-Chair, Signal Processing for Communications Symposium, Int’l Conf. on Computing, Networking and Communications (ICNC), Mar. 5-8, 2018, Maui, HI.
Technical Program Committee, ACM Int’l Conf. on Underwater Networks (WUWNet), Nov. 6-8, 2017, Halifax, Canada.

**Kuilin Zhang**
Host Committee, Int’l Symposium on Transportation and Traffic Theory (ISTTT), July 24-26, 2017, Chicago, IL.

**EDITORIAL BOARDS**

**Bo Chen**
Journal Reviewer: Transactions on Intelligent Transportation Systems.

**Zhen Liu**
Journal Editor: Journal of Cold Regions Engineering.
Journal Reviewer: Carbon; Journal of Cold Regions Engineering; Sustainable Civil Engineering; Computer and Geotechnics.

**Sumit Paudyal**

**MEDIA INTEREST**

Elena Semouchkina’s research was featured in a Michigan Tech News article, “Beyond Good Vibrations: New Insights into Metamaterial Magic.” (Nov. 6, 2017)

Sumit Paudyal’s research was featured in the Michigan Tech News article, “Sumit Paudyal Wins CAREER Award.” (Feb. 14, 2018)


Nina Mahmoudian was quoted in the Michigan Tech News article, “Crazy Smart Summer: Girls Build Robots To Help People.” (July 18, 2017)


Elena Semouchkina’s research was featured in a Michigan Tech News article, “Beyond Good Vibrations: New Insights into Metamaterial Magic.” (Nov. 6, 2017)

Leo Liu is quoted in the Daily Mining Gazette article of Aug. 31, 2018, “Breathing Pavement: Surface offers flood protection.”

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**Jinshan Tang**
Journal Editor: Journal of Healthcare Engineering.
Guest Editor: Pattern Recognition.

**Zhaohui Wang**

CONTINUED ON NEXT PAGE
Center for Cyber-Physical Systems

CONT’D FROM PREVIOUS PAGE

Reza Zekavat

Kuilin Zhang
Journal Editor: Transportation Research Part E: Logistics and Transportation Review.
Journal Reviewer: Computer-Aided Civil and Infrastructure Engineering; Transportation Research Part B: Methodological; Transportation Science.

INVITED TALKS

Sumit Paudyal
“Recent Advancements in Distribution Optimal Power Flow,” South Dakota State University, Brookings, SD, April 2018.

Bo Chen

Zhen Liu

Jinshan Tang
“Investigation of 3-D ultrasound imaging technology and development of 3-D image analysis technology for cattle reproduction application,” Seminar, Shanxi Agriculture University, Taigu, Shanxi, China, Oct. 9 2017.

Kuilin Zhang
“Data-driven model predictive control models for cooperative adaptive cruise control using connected vehicle data,” Research Seminar, Department of Civil, Environmental, and Geo- Engineering, University of Minnesota, Minneapolis, MN, Mar. 6, 2018.


Semouchkina, E., “A Road to Optical Cloaking Using Transformation Media Built from Photonic Crystals,” 1st Int’l Conf. on Optics, Photonics, and Lasers (OPAL’ 2018), May 9-11, 2018, Barcelona, Spain.


CONFERENCE PRESENTATIONS


Semouchkina, E., “A Road to Optical Cloaking Using Transformation Media Built from Photonic Crystals,” 1st Int’l Conf. on Optics, Photonics, and Lasers (OPAL’ 2018), May 9-11, 2018, Barcelona, Spain.


BOOKS


BOOK CHAPTER

REPORTS

JOURNAL ARTICLES


CONFERENCE PROCEEDINGS


Jeff Wall was selected as one of 11 spring 2018 Dean’s Teaching Showcase members by SBE Dean Dean Johnson, as announced in the Feb. 9, 2018, issue of Tech Today.

**ACADEMIC AWARDS**

**Bo Chen**  
Distinguished Paper Award for “Supporting Transparent Snapshot for Bare-metal Malware Analysis on Mobile Devices,” 2017 Annual Computer Security Applications Conf. (ACSAC), Dec. 4-8, 2017, Orlando, FL.

**Jeffrey Wall**  
Finalist, 2018 Distinguished Teaching Awards, Michigan Tech William G. Jackson Center for Teaching and Learning.

**EDITORIAL BOARDS**

**Bo Chen**  
Journal Reviewer: MDPI Sensors; IEEE Network Magazine; MDPI Sensors; MDPI Symmetry; IEEE Network Magazine; Codes and Cryptography, Designs; IEEE Communications Magazine; MDPI Symmetry, IEEE Transactions on Information Forensics and Security; MDPI Information.

Conference Paper Reviewer: 1st Workshop on Distributed Ledger of Things (DLot 2018); 2018 IEEE Symposium Series on Computational Intelligence; 15th IEEE Int'l Conf. on Mobile Ad Hoc and Sensor Systems; 2018 IEEE Conf. on Communications and Network Security; 2018 IEEE Int'l Conf. on Communications; IEEE Symposium Series on Computational Intelligence.

**Guy Hembroff**  
Editor: Brazilian Journal of Medicine and Human Health.

**Yu Cai**  
Associate Editor: Green Computing: Informatics and Systems.  

**Jeff Wall**  
Journal Reviewer: Information and Management; Decision Sciences; Information Systems Journal; Journal of the Association for Information Systems; Information and Management.  
Conf. Editor: Dewald Roode Workshop.

**PROFESSIONAL SERVICE**

**Yu Cai**  

**Bo Chen**  
Grant Proposal Reviewer, Univ. of Sharjah, 2018.  
Conference Paper Reviewer: IEEE Conf. on Communications and Network Security (CNS), May 30-June 1, 2018, Beijing, China; IEEE Int’l Conf. on Communications (ICC), May 20-24, 2018, Kansas City, MO.
THE CENTER FOR CYBERSECURITY HAS TWO MAIN GOALS: RESEARCH IN CRITICAL CYBERSECURITY AREAS AND ADVANCING THE PRACTICE AND PUBLIC AWARENESS OF CYBERSECURITY THROUGH EDUCATION AND OUTREACH ACTIVITIES.

**Guy Hembroff**
Portage Health Foundation Committee, 2015-2020.
Board Member, Upper Great Lakes Family Health Center (UGLFHC), 2014-present.

**Jeff Wall**
Conf. Reviewer: Hawaiian Int’l Conf. of System Sciences; Dewald Roode Workshop; Workshop on Information Security and Privacy.

**UNIVERSITY SERVICE**

**Yu Cai**
ABET CAC Evaluator, 2018-present.
Chair, University Senate IT Committee, 2018-present.
Program Coordinator, CAE-CDE Application, 2018-present.
Conflict of Interest Committee, 2017-2019.
Faculty Distinguished Service Award Committee, 2017-2018.
CNSA Faculty Hiring Committee, School of Technology, 2017-2018.
Program Coordinator, ABET Preparation, 2017-2018.
Advisor, Red Team on Cybersecurity, 2016-present.
Chair, Program Coordinator, CNSA Program, 2016-present.
Advisor, Chinese Students and Scholars Association, 2016-2019.
University Climate Study Committee, 2016-2018.
Interschool TPR Committee, 2016-2018.
Curriculum and Course Binder Development Committee, School of Technology, CNSA Curriculum, 2016-2018.

**Bo Chen**
Faculty Search Committee, CS Dept., 2018-2019.
Reviewer, Summer Undergraduate Research Fellowship program (SURF), Feb. 2018.
Advisor, National Cyber League (NCL), 2017-2018.
Graduate Committee, CS Dept., 2017-2018.

**Jean Mayo**
Chair, Graduate Assessment Committee, CS Dept., 2017-present.
Information Technology Governance Committee, 2015-present.
ABET Accreditation Committee, CS Dept., 2015-present.
Tenure and Promotion Committee, CS Dept., 2009-present.

**Guy Hembroff**
Informatics Computing Committee, 2013-present.
School of Technology Promotion and Tenure Committee, 2010-2019.
Chair, CNSA Program Committee, 2006-present.

CONTINUED ON NEXT PAGE

**INVITED TALKS**

**Bo Chen**
“Towards Data Protection in Flash-based Solid-State Storage,” Univ. of Electronic Science and Technology of China, Sichuan, China, June 2018.
Sichuan Univ., Sichuan, China, June 2018.
Chinese Academy of Sciences, Beijing, China, June 2018.
Univ. of Chinese Academy of Sciences, Beijing, China, June 2018.
Institute of Computing Technology, Chinese Academy of Sciences, Beijing, China, May 2018.
Wuhan Univ., Hubei, China, May 2018.

**Guy Hembroff**
CONT’D FROM PREVIOUS PAGE

Jeff Wall
MBA Program Committee, SBE, 2016-2018.
Advisor, Association for Information Systems at Michigan Tech, Student Chapter, 2015-2018.

BOOKS

BOOK CHAPTERS

CONFERENCE ATTENDANCE
Chen, B., IEEE Conf. on Communications and Network Security (IEEE CNS), May 30-June 1, 2018, Beijing, China.

Hembroff, G., Sixth IEEE Int’l Conf. on Healthcare Informatics (ICHI), June 4-7, 2018, New York, NY.

CONFERENCE PRESENTATIONS

JOURNAL ARTICLES


CONFERENCE PROCEEDINGS


Center for Data Sciences

RESEARCH AREAS
• DATA SCIENCES
• BIG DATA AND DATA-INTENSIVE COMPUTING
• ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING
• PATTERN RECOGNITION
• SIGNAL AND IMAGE PROCESSING
• SENSOR AND DATA FUSION

TECHNICAL COMMITTEES
Timothy Havens
IEEE Computational Intelligence Society Task Force on Cybersecurity for Smart World, 2017-present.
Thomas Oommen
Co-Chair, Seismic Hazards Technical Working Group, Association of Environmental and Engineering Geologists (AEG), 2013-present.
Officer, Secretary, Engineering Geology and Site Characterization Committee, ASCE Geo-Institute, (EG&SC), 2013-present.
Communications Committee, Association of Environmental and Engineering Geologists (AEG), 2013-present.

EDITORIAL BOARDS
Jeremy Bos
Assoc. Editor: Applied Optics.
Reviewer: Optical Engineering; IEEE Transactions on Image Processing; Optics Communications; Applied Optics; Journal of the Optical Society of America A; Optics Express; Optics Letters.
Laura Brown
Co-editor: AI Magazine.
Mari Buche
Timothy Havens
Associate Editor: IEEE Transactions on Fuzzy Systems.
Nilufer Önder
Reviewer: AAAI Conf. on Artificial Intelligence; AI Magazine; Artificial Intelligence Journal; Computational Intelligence; Decision Sciences Institute; Grace Hopper Conf. Travel Scholarships; Int’l Journal on Artificial Intelligence Tools; Int’l Journal of Geotechnical Earthquake Engineering.
Benjamin Ong
Reviewer: National Science Foundation; AMS MathScinet; Journal of Computational Physics; Mathematical Reviews; SIAM Journal on Scientific Computing (SISC); Recent Advances in Electrical and Electronic Engineering; Communications in Applied and Computational Science; Computing and Visualization in Science; AMS; JCP; SISC; CamCOS.
Thomas Oommen
Editorial Board: Geomatics; Environmental and Engineering Geoscience.
Michael Roggemann
Editor: Applied Optics.
Mark Rouleau
Reviewer: Environmental Management; Landscape and Urban Planning; Energies.

PROFESSIONAL SERVICE
Jeremy Bos
Chair, SPIE Scholarship Committee, 2013-present.
THE CENTER FOR DATA SCIENCES FOCUSES ON THE RESEARCH OF DATA SCIENCES EDUCATION, ALGORITHMS, MATHEMATICS, AND APPLICATIONS.

Laura Brown
Organizing Committee, Symposium on Educational Advances in Artificial Intelligence (EAAI), 2012-2019.

Tim Havens
IEEE Computational Intelligence Society Social Media Committee, 2015-present.


Nilufer Önder
Science Olympiad Coach, Washington Middle School and Calumet High School, 2005-present.

Benjamin Ong
Co-organizer, Kliakhandler Conf. on Bayesian Inference in Statistics and Statistical Genetics, July 2017-present.

Thomas Oommen

Grant Proposal Reviewer, National Science Foundation: Int’l Research Experience for Students, 2018-present.

Grant Proposal Reviewer, National Science Foundation: Smart and Connected Communities, 2017-present.

UNIVERSITY SERVICE

Jeremy Bos
Undergraduate Program Committee, ECE Dept., 2015-present.
Advisor, GM/SAE AutoDrive Challenge Team, 2017-present.
Advisor, Robotics System Enterprise, 2017-present.

Laura Brown
Presenter, Summer Youth Program Women in Computer Sciences Week.
Advisor, Computer Science student events.
Co-advisor, Michigan Tech Women in Computer Sciences (WiCS).
Alternate, University Senate, 2016-present.
ADVANCE Matrix Process for University Programs (AMP-UP, 2015-present.
CS External Relations Committee, 2014-present.

Mari Buche
Chair, MBA Program Committee.
SBE Strategic Planning Committee.

Laura Brown
Program Coordinator, SBE Data Science Council.
Data and Safety Monitoring Board, 2018-present.
Data Science Executive Board, 2014-2018.
Advisory Council, Student Veteran’s Group, 2013-present.
University Marshal, 2010-2018.
Faculty Advisor, Rotaract Student Organization, 2017-2018.

CONTINUED ON NEXT PAGE

DataS SPONSORSHIPS
2018 MTU AutoDrive Challenge Team, led by DataS member Jeremy Bos, which allowed the team to purchase and mount cameras on their self-driving car.
41 North Film Festival showing of AlphaGo, Nov. 3, 2017. ICC members Tim Havens, Laura Brown, S. Goldsmith participated in a panel discussion following the film.

ACADEMIC AWARDS
Jeremy Bos and M. Buche were recognized at Michigan Tech’s annual Research Development Day, Jan. 11, 2018, for having received their first external funding as principal investigators at Michigan Tech.

Benjamin Ong
Outstanding Research Award, Michigan Tech Dept. of Mathematical Sciences, July 2017.

Thomas Oommen
First GIAN Fellow of the Dept. of Geology, Univ. of Kerala, India, 2018.
First Erudite Scholar of the Dept. of Geology, Univ. of Kerala, India, 2017.

MEDIA INTEREST

Jeremy Bos
TV6 AutoDrive Story, Apr. 6, 2018.
Paulding Lights filming on location, Science or Discovery Channel, to be aired on proposed series at a future time.
CONT’D FROM PREVIOUS PAGE

Timothy Havens
REF Reviewer, Office of Research, Apr. 2018.
Chair, Data Science Committee, 2017-2018.
Promotion and Tenure Committee, CS Dept., 2017-2018.
Reviewer, REF SEED, 2017.
Research Computing Committee, 2015-present.
Data Sciences Executive Committee, 2014-present.

Nilufer Önder
Advisor, Upsilon Pi Epsilon CS Honor Society, 2006-present.
Advisor, Women in Computing Sciences (WiCS) Student Group, 2004-present.
Co-director, Women in Science and Engineering (WISE) Faculty Group, 2010-present.
Co-Chair, PhD Qualifiers on Theory of Computation Committee, CS Dept., 2008-present.

Benjamin Ong
Graduate Program Director, Data Science.
Faculty Mentor, Enterprise, IT Oxygen.
Research Computing Committee.
DRS Taskforce.
Program Coordinator, Data Science, 2018-present.
Faculty Mentor, Enterprise, IT Oxygen, 2018-present.
Judge, Design Expo, April 2018.
Judge, Undergraduate Research Symposium, March 2018.
CIS Working Group, 2017-present.
Research Computing Comm., 2015-present.

Thomas Oommen
Executive Committee, Michigan Tech Transportation Institute, 2017-present.

Chair, Promotion and Tenure Committee
Chair, GMES Dept., 2017-18.
Chair, Geological Engineering Curriculum Committee, 2014-present.
Chair, Promotion and Tenure Committee, GMES Dept., 2017-18.

Michael Roggemann

Mark Rouleau
Advisor, Committee to Organize a School of Computing, May 2018.
Advisor, University Liaison to the Int’l Consortium of Political and Science Research (ICPSR), 2016-present.
Chair, Global Literacy Learning Goal Committee, 2014-present.
Advisor, Social Sciences Graduate Student Society, 2014-present.
Chair, Global Issues Committee, 2012-present.
Social Sciences Dept. Law and Society Assessment Committee, 2012-present.

Hairong Wei
SFRES Int’l Collaboration Committee, 2013-present.
SFRES BRC Distinguished Seminar Committee, 2008-present.
BOOK CHAPTERS

REPORTS

ABSTRACTS AND CONFERENCE PRESENTATIONS

INVITED TALKS
Jeremy Bos
“Unreal as a platform for design, testing, validation of algorithms for Autonomous Ground Vehicles,” NATO Applied Vehicle Technology Panel (AVT-248), Athens, Greece, 2018.

Tim Havens


**INVITED TALKS**

**Benjamin Ong**


**Thomas Oommen**


**Mark Rouleau**


Ofori, R., M.S. Rouleau, "Using Agent-Based Modeling to Explore the Social, Environment, and Policy Impacts of Seaweed Invasion in the Coastal Communities of Ghana," Proc. of Int’l Symposium on Society and Resource Management (ISSSRM), June 17-21, 2018, Salt Lake City, UT.


Center for Human-Centered Computing

Kevin Trewartha
Journal Reviewer: Human Movement Science; Medicine and Science in Sports and Exercise; Neuropsychologia; Psychology and Aging; Scientific Reports; The Clinical Neuropsychologist; Journal of Experimental Psychology.

PROFESSIONAL SERVICE
Scott Kuhl
Publications Co-Chair, 2018 IEEE Virtual Reality Conference.

Myounghoon (Philart) Jeon
General Chair, 24th Int’l Conf. on Auditory Display (ICAD), June 10-15, 2018, Mich. Tech, Houghton, MI.

Kevin Trewartha
Counselor at Large, Mich. Society for Neuroscience.

Elizabeth Veinott
Organizer, Michigan Decision Conf., May 2018, Ann Arbor, MI.

Scott Kuhl
Advisor, Husky Game Dev. Enterprise.
Chair, Computer Science Chair Evaluation Committee, 2016-2017.
Computer Science TPR Committee, 2015-present.
Faculty Advisor, Summer Youth Program, 2011-present.
Faculty Advisor, Lutheran Campus Ministry, 2016-present.
KEVIN TREWARTH
Faculty Senate, 2018-2021.
Pavlis Honors College Internal Advisory Board, 2018-present.
Biomachanics Faculty Search Committee, CLS Dept., 2017-2018.
Chair, Psychology Lecturer Search Committee, CLS Dept., 2017-2018.
Dean Search Committee, CLS Dept., 2017-2018.

Universities Service
Scott Kuhl
Advisor, Husky Game Dev. Enterprise.
Chair, Computer Science Chair Evaluation Committee, 2016-2017.
Computer Science TPR Committee, 2015-present.
Faculty Advisor, Summer Youth Program, 2011-present.
Faculty Advisor, Lutheran Campus Ministry, 2016-present.
KEVIN TREWARTH
Faculty Senate, 2018-2021.
Pavlis Honors College Internal Advisory Board, 2018-present.
Biomachanics Faculty Search Committee, CLS Dept., 2017-2018.
Chair, Psychology Lecturer Search Committee, CLS Dept., 2017-2018.
Dean Search Committee, CLS Dept., 2017-2018.

Research Areas
- Multimodal Interactions
- Human-Agent Interactions
- Assistive Technologies and Intelligent Health
- Software Education
- Novel Interfaces
- Computational Modeling
- Explanation in Systems
- Collaboration and Trust
- Decision Making and Adaptive Learning

Editorial Boards
Myounghoon (Philart) Jeon
Associate Editor: Int’l Journal of Human-Computer Studies.

Shane Mueller

Associate Chair, ACM CHI-Play Conference on HCI in Games and Interactive Play, Melbourne, Australis, 2017-2018.
Co-Chair, Doctoral Consortium, 2018 ACM CHI-Play Conference on HCI in Games and Interactive Play, Melbourne, Australia, 2017-2018.

Keith Vertanen
NSF Panelist, Information and Intelligent Systems Division, 2018.
Associate Chair, User Experience and Usability, ACM CHI Conf. on Human Factors in Computing Systems (CHI), Apr. 21-26, 2018, Montreal, Canada.
Presenter, ACM SIGCHI Summer School on Research Methods and Approaches to Text Entry and Other Interaction Techniques, May 21-25, 2018, Mumbai, India.

University Service
Scott Kuhl
Advisor, Husky Game Dev. Enterprise.
Chair, Computer Science Chair Evaluation Committee, 2016-2017.
Computer Science TPR Committee, 2015-present.
Faculty Advisor, Summer Youth Program, 2011-present.
Faculty Advisor, Lutheran Campus Ministry, 2016-present.

Kevin Trewartha
Faculty Senate, 2018-2021.
Pavlis Honors College Internal Advisory Board, 2018-present.
Biomachanics Faculty Search Committee, CLS Dept., 2017-2018.
Chair, Psychology Lecturer Search Committee, CLS Dept., 2017-2018.
Dean Search Committee, CLS Dept., 2017-2018.


**HCC SPONSORSHIPS**

24th Int’l Conf. on Auditory Display (ICAD’18), June 10-15, 2018, at Michigan Tech, Houghton, MI.

HCC Demo Day, November 2, 2017, on the Michigan Tech campus, which showcased the work of researchers who “design with humans in mind” through a series of demos, lectures, and tours. ICC Distinguished Lecturer, Dr. Elizabeth Whitaker from Georgia Tech Research Institute (GTRI), presented a talk titled, “How Can Cognitive Systems Support Humans in Solving Problems?”

**MEDIA INTEREST**

Keith Vertanen’s NSF CAREER project was featured in a story in the Daily Mining Gazette, spring 2018.

The story, “Keith Vertanen Wins CAREER Award” was published on the Michigan Tech News site, May 3, 2018.

Keith Vertanen’s NSF CAREER Award was the subject of the story, “Michigan Tech professor awarded $500,000 in funding,” on UP Matters, WJMN-TV3, May 16, 2018.

Written by Scott Kuhl, the story “Community College Collaboration Preps Students For Industry” was published on the Michigan Tech News site Aug. 30, 2018. The article outlines the results of an NSF grant involving Scott Kuhl, Alex Sergeyev, and Bay de Noc Community College, which aims to make robotics education more accessible to both students and displaced workers.
Center for Human-Centered Computing

HCC


JOURNAL ARTICLES


CONFERENCE PROCEEDINGS


ICC Active Grants and Contracts - Cumulative Total

Millions

$8
$7
$6
$5
$4
$3
$2
$1
$0

May-14  May-15  May-16  May-17  May-18

ICAD 2018
Center for
Scalable Architectures and Systems

EDITORIAL BOARDS
Ali Ebnenasir
Zhuo Feng
Zafar Iqbal
Saeid Nooshabadi
Editor, Int’l Journal of Electronics and Communications.
Soner Önder
Zhenlin Wang

UNIVERSITY SERVICE
Ali Ebnenasir
Undergraduate Committee, CS Dept., 2012-present.
Qualifying Exam Committee, CS Dept., 2006-present.
Dan Fuhrmann
Chair, ESE Graduate Committee, 2003-present.
SEAS Graduate Board, 2003-present.
Chair, EE (ESE) Graduate Admissions Committee, 1986-present.
Soner Önder
Zhenlin Wang
Graduate Assessment Committee, CS Dept., 2017-present.
Tenure, Promotion and Reappointment Committee, CS Dept., 2009-present.
ABET Committee, CS Dept., 2017-2018.
Dir. of Graduate Studies, CS Dept., 2012-2017.

RESEARCH AREAS
- SCALABLE COMPUTER
  ARCHITECTURE AND SYSTEMS
- HETEROGENEOUS PARALLEL AND DISTRIBUTED COMPUTING FOR INFORMATION PROCESSING
- EMBEDDED SYSTEMS
- DEPENDABLE COMPUTING
- FORMAL METHODS
- FAULT TOLERANT SYSTEMS
- VLSI DESIGN AND CAD
- ARCHITECTURES FOR SECURE SYSTEMS
- VIRTUALIZATION
- SCALABLE ALGORITHMS

AWARDS
Zafar Iqbal, NSF travel grant, 2018 NSF Smart and Connected Communities (S&CC) Aspiring PI Workshop, co-located with the 4th IEEE Smart Cities Conference (ISC2), Kansas City, MO, Sep. 17, 2018.
Aref Majdar, student of Saeid Nooshabadi, Graduate School Finishing Fellowship Award; ECE Jonathan Bara Award as outstanding Graduate Teaching Assistant.
Gorkem Asilioğlu and Zhaoxiang Jin, students of Soner Önder, Graduate School Finishing Fellowship Award.
THE CENTER FOR SCALABLE ARCHITECTURES AND SYSTEMS CARRIES OUT GROUNDBREAKING RESEARCH THAT LEADS TO NEW AREAS OF PARALLELISM AND SCALABILITY IN COMPUTING INFRASTRUCTURE, HARDWARE AND SOFTWARE ARCHITECTURES, AND ALGORITHMS.

**INVITED TALKS**

**Zhuo Feng**

- Department of Computer Science and Engineering, University of California San Diego, Nov. 2017.

**Ali Ebnenasir**


**PRESS INTEREST**

Zafar Iqbal was quoted in the story, “Blocked by Trump in the US, China Takes Detour to Develop Military-Grade Semiconductor Chips,” in *The Epoch Times*, June 14, 2018.

**CONFERENCE PROCEEDINGS**


Chen, P., J. Yue, X. Liao, H. Jin, "Simultaneously Optimizing DRAM Cache Latency and Hit Rate", Proc. of the 35th IEEE Int'l Conf. on Computer Design (ICCD), Nov. 5-8, 2017, Boston, MA.


### FY18 IRAD Returns Spending

<table>
<thead>
<tr>
<th>Category</th>
<th>ICC</th>
<th>CPS</th>
<th>CyberS</th>
<th>DataS</th>
<th>HCC</th>
<th>SAS</th>
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</thead>
<tbody>
<tr>
<td>Travel/Lodging/Conf. Fees</td>
<td>$0</td>
<td>$5,000</td>
<td>$10,000</td>
<td>$15,000</td>
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<td>Technical/Scientific Equip</td>
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<td>Honorarium</td>
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<td>Hardware/Minor Equip</td>
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Director of Advancement for the College of Computing
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