ANNUAL CONFERENCE 2022

Tuesday, September 27th
8:30 AM - 4:00 PM
McNamara Alumni Center
Welcome to the 10th Institute for Engineering in Medicine (IEM) Annual Conference!

The mission of IEM is to turn science and engineering into medical practice. We host this Conference and many other events to foster collaborations between engineering and biomedical faculty at the University of Minnesota and between University faculty and industry colleagues.

Today’s event opens with welcome remarks from the Dean of the Medical School followed by an overview of IEM from Director John Bischof. The Conference will continue with keynote talks by Andrew Alleyne, Dean of the College of Science & Engineering, and two distinguished University of Minnesota faculty who are highly invested in IEM’s mission.

After announcing new Industry Fellows and IEM Doctoral Fellowship winners, we will break to pick up lunch and then head either to breakout sessions focused on specific IEM focus areas (for faculty) or the Student Career Development session (for students and postdocs). The Student session will feature a Q&A with a panel of scientists representing academia, industry, and other career paths.

A student poster session and competition highlighting research of IEM members and other University faculty will be held 1:30 – 4:00. Winners of the poster competition will be announced at a later date.

As part of efforts to collaborate more with industry partners, we are hosting an Industry Fellows meeting 1:30 – 2:30 and an informal Industry Mixer 4:00 – 6:00. All faculty and postdocs are welcome to attend both events.

We look forward to your continued interest and support. Please contact us at iem@umn.edu with ideas for improving IEM.

David Odde, Ph.D. (2022 IEM Annual Conference Chair)
Medtronic Endowed Associate Director, Strategic Research Initiatives
Institute for Engineering in Medicine

Alena Talkachova, Ph.D. (2022 IEM Annual Conference Co-Chair)
Assistant Director, Strategic Research Initiatives
Institute for Engineering in Medicine

John Bischof, Ph.D. (2022 IEM Annual Conference Co-Chair)
Director, Institute for Engineering in Medicine
8:30 - 9:00 am Networking and Breakfast
Continental-style Breakfast available in The Commons

9:00 - 9:05 am Welcome Remarks
Memorial Hall
Jakub Tolar, M.D., Ph.D.
Dean, Medical School

9:05 - 9:30 am State of the Institute for Engineering in Medicine
Memorial Hall
John Bischof, Ph.D.
Director, Institute for Engineering in Medicine

9:30 - 10:10 am “Engineering Digital Health”
Memorial Hall
Andrew Alleyne, Ph.D.

10:10 - 10:50 am “Driving Healthcare Innovation through Learning Health System Capabilities”
Memorial Hall
Genevieve Melton-Meaux, M.D., Ph.D.

10:50 - 11:05 am Coffee Break

Memorial Hall
Theresa M. Reineke, Ph.D.

11:45 - 12:00 pm IEM Awards
Memorial Hall
IEM Engineering in Medicine Doctoral Fellowship Recipients:

- Lulu Ge, Electrical and Computer Engineering
- Ali Nouriani, Mechanical Engineering

2022 Industrial Fellows Inductees:
- David Black, Patent Attorney, Schwegman, Lundberg & Woessner
- Danny Gelfman, Distinguished Designer, Medtronic
- Maria Miller, Global Strategic Marketing, W.L. Gore
- Daniel Sigg, Distinguished Scientist, Medtronic

12:00 - 12:15 pm Lunch Break
The Commons
Pick up a box lunch in The Commons and join one of the afternoon Breakout Sessions
12:15 - 1:30 pm  **BREAKOUT SESSIONS:**

**Ski-U-Mah**  
**CANCER BIOENGINEERING**  
Session Moderators: Paolo Provenzano and Lindsey Sloan

**Thomas Swain Room**  
**DATA SCIENCE AND AI IN MEDICAL DEVICES**  
Session Moderators: Rick Kuntz, Genevieve Melton-Meaux, and Jaideep Srivastava

**Heritage Gallery**  
**CARDIOVASCULAR ENGINEERING**  
Session Moderators: Brenda Ogle and Paul Iaizzo

**Minnesota Room**  
**NEUROENGINEERING**  
Session Moderators: Hubert Lim, John Osborn, and Tay Netoff

12:15 - 1:10 pm  **STUDENT CAREER DEVELOPMENT SESSION**  
Session Moderators: Tim Tripp and Alena Talkachova.  
Panelists: Bernard Li, Materials Scientist, Medtronic  
Shawna Persaud, Director of Clinical and Product Management, Abilitech Medical Inc  
Sharolyn Kawakami-Schulz, Career Exploration and Professional Development Facilitator, U of MN Medical School  
Bach Nguyen, Senior Consultant, Deloitte  
Heidi Hau, Innovation & Strategy Consultant

1:30 - 2:30 pm  **INDUSTRY FELLOWS AND INSPIRE PILLAR MEETING**

1:30 - 4:00 pm  **STUDENT AND POSTDOCTORAL POSTER SESSION & COMPETITION**

**IMPORTANT NOTE:** Posters must be up on the designated poster panel by 1:15pm, and at least one author must be in attendance from 1:30-4:00 pm. For posters in the Poster Award Competition, the first non-faculty author must be present 1:30-4:00 pm.

* Awards will be announced at a later date.

4:00 - 6:00 pm  **IEM INDUSTRY MIXER**
CONNECTING TO FREE WIRELESS NETWORK
Network Name: U of M Guest

THE McNAMARA ALUMNI CENTER
200 SE Oak St, Minneapolis, MN 55455
Andrew Alleyne became Dean of the University of Minnesota College of Science and Engineering (CSE) on Jan. 10, 2022. As CSE Dean, Alleyne is the college’s chief executive officer and chief academic officer.

Alleyne holds a Ph.D. and master’s degrees in mechanical engineering from the University of California at Berkeley as well as an undergraduate degree in mechanical and aerospace engineering from Princeton University. He has published and presented widely and has received many awards and recognitions for his scholarship. He holds distinguished recognition as a fellow of the American Society of Mechanical Engineers, the Institute of Electrical and Electronics Engineers, and the American Association for the Advancement of Science. Among many collaborations with industry, academic, and government partners, he served for eight years on the U.S. Air Force Scientific Advisory Board, most recently as the science and technology chair.

Alleyne served as a professor of Mechanical Science and Engineering at the University of Illinois Urbana-Champaign (UIUC) 1994-2022 while also an affiliated faculty appointment in the Department of Electrical and Computer Engineering. While at UIUC, Alleyne also led the NSF Engineering Research Center on Power Optimization of Electro Thermal Systems (POETS), an ambitious multidisciplinary center based at UIUC in partnership with three other U.S. universities, two international institutions, and many industry and government partners. Bringing together electrical engineers, mechanical engineers, materials scientists, and physicists, the center’s focus is on developing new ways to control the flow of energy in the mobile electrified systems needed for cars, ships, and planes — ultimately to make transportation more efficient and environmentally sustainable. The center encompasses related activities in graduate education and workforce development as well as K-12 outreach.

Alleyne also served a term as UIUC associate department head for the Department of Mechanical Science and Engineering. For half a decade, he led the department’s faculty recruiting committee, where he developed a multi-year plan that increased the hiring of women and underrepresented minority faculty. He advanced several initiatives to recruit underrepresented talent into academia, including the Graduate Engineers Diversifying Illinois program on the UIUC campus and serving as its faculty mentor. He has received many awards for his teaching, advising, and mentoring of both undergraduate and graduate students. Alleyne’s last four years at UIUC were as associate dean for research in the UIUC Grainger College of Engineering, overseeing the research of 13 departments and strategically strengthening the college’s research portfolio, including leading the development of new cross-college research centers and a translational research institute.
DISTINGUISHED KEYNOTE SPEAKERS

GENEVIEVE MELTON-MEAUX, M.D., PH.D.
Professor of Surgery
Director, Center for Learning Health System Sciences
Chief Analytics and Care Innovation Officer, M Health Fairview

Genevieve Melton-Meaux, M.D., Ph.D., is a Professor of Surgery, the Director for the Center for Learning Health System Sciences, and Core Faculty in the Institute for Health Informatics. She is a practicing colorectal surgeon with interests in colorectal cancer, inflammatory bowel disease, minimally invasive surgical techniques, and individualized treatment plans for patients with complex diagnoses. She also leads research on improving note usage in EHRs (including the incorporation of natural language processing), evaluating technology solutions in practice, and improving surgical care with informatics.

Melton-Meaux serves as the Chief Analytics and Care Innovation Officer for M Health Fairview, where she leads its Clinical Variation Reduction program promoting appropriate evidence-based care, enterprise data analytics, and informatics including Clinical Decision Support and Health IT optimization and innovation. She also serves as President of the American College of Medical informatics and as a Board Member for the American Medical Informatics Association.

THERESA M. REINEKE, PH.D.
Distinguished McKnight University Professor Department of Chemistry
Associate Editor ACS Macro Letters

Theresa M. Reineke, Ph.D., is a Distinguished McKnight University Professor of Chemistry and holds graduate faculty appointments in the Departments of Chemical Engineering & Materials Science and Pharmaceutics.

Reineke’s research group is focused on enabling fundamental and applied technology advancements in three main areas: 1) the design of polymer-based delivery systems for DNA and RNA to treat genetic diseases, 2) engineering interactions between polymers and small molecules for active encapsulation, drug delivery, chemical sensing, and network engineering, and 3) the creation of sustainable and environmentally friendly polymers/plastics from naturally occurring chemicals derived from plants.

Reineke is currently on the Editorial Advisory Boards of the ACS journals Biomacromolecules and Bioconjugate Chemistry and the RSC journal Polymer Chemistry. She is also a founding Associate Editor of ACS Macro Letters.
ABOUT IEM

The Institute for Engineering in Medicine is an interdisciplinary organization that creates and supports research collaborations between engineers, scientists, and medical professionals at the University of Minnesota and provides research and partnership opportunities to the wider medical industry. With over 290 affiliated researchers representing 85 departments across the Twin Cities campus, IEM provides University faculty, students, and external partners with world-class resources to drive innovation in medicine and to find solutions for the great medical challenges of today and tomorrow.

ORGANIZATION

The IEM Organizational Chart below captures the Institute’s engagement with University faculty and postdocs, industry collaborators, and students from grade 6 through graduate school.
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IEM uses Facebook, Twitter, and LinkedIn to interact with IEM members, the University of Minnesota community, members of industry, and the scientific community.

To connect with IEM through social media:

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Twitter: @UMNIEM
Instagram: @umniem
LinkedIn: Institute for Engineering in Medicine - University of Minnesota

If you have any questions, please connect with us at iem@umn.edu. We look forward to engaging with you and your groups!