



Three schools at Indiana University Bloomington join forces with leaders in the field of fashion technology to think about the future. Designed as a venue for discussing recent advances in technology that have implications in wearables and fashion, the Fashion Technology Symposium brings together a highly respected group of experts in robotics, human-computer interaction, design, wearables, art, and computational fashion design.

This collaborative event is the joint product of the <u>School of Informatics</u>, <u>Computing</u>, and <u>Engineering</u>, the <u>School of Art, Architecture</u>, and <u>Design</u>; and the <u>School of Education</u>, all at Indiana University. We gratefully acknowledge support from the Bill Blass Fund, the <u>Creativity Labs</u>, <u>Department of Informatics</u>, and the <u>Cyberinfrastructure for Network Science Center</u> at Indiana University.

Organizers







Katy Börner

Victor H. Yngve Distinguished Professor of Engineering and Information Science, School of Informatics, Computing, and Engineering; Director, Cyberinfrastructure for Network Science Center; Curator of Mapping Science exhibit, Indiana University



Kylie Peppler

Associate Professor of Learning Sciences, Director of the Creativity Labs, School of Education, Indiana University; Lead of the MacArthur Foundation's Make-to-Learn initiative.



Lisel Record

Curator, Mapping Science Exhibit, Cyberinfrastructure for Network Science Center, Indiana University



Kate Rowold

Professor of Fashion Design; Associate Dean, School of Art, Architecture + Design, Indiana University

Participants

INDIANA UNIVERSITY FASHION TECHNOLOGY SYMPOSIUM

External



Cindy Bethel

Associate Professor of
Computer Science and
Engineering Department,
Mississippi State University



Kate Hartman
Associate Professor, OCADU



Jacobs
Postdoctoral Fellow, Stanford
University



Dana KulićAssistant Professor, University of Waterloo



Jie Qi
Cofounder and Creative
Director, Chibitronics



Maryam Rahnemoonfar

Assistant Professor of Computer Science and Director of Computer Vision and Remote Sensing Laboratory (Bina Lab), Texas A&M University-Corpus Christi



Yvonne Rogers

Professor of Interaction Design & Director of UCLIC, Deputy Head of Computer Science, University College London

Indiana University



Heather Akou

Associate Professor, Director Sage Collection, SoAA+D, Indiana University



Justin Bailey

Assistant Professor, SoAA+D Indiana University



Maureen **Biggers**

Director, CEWiT, Indiana University



Deb Christiansen

Director of Undergraduate Studies, Senior Lecturer, SoAA+D, Indiana University INDIANA UNIVERSITY

FASHION TECHNOLOGY SYMPOSIUM



Heidi Davis-Soylu

Director of Education, Eskenazi Associate Professor, SoAA+D, University Museum of Art, Indiana University



Margaret Dolinsky

Indiana University



Peg Faimon

Dean of SoAA+D, Indiana



Pnina Fichman

Professor, Director - Rob Kling Center for Social Informatics, SICE, Indiana University



Lori Frye

Visiting Lecturer, SoAA+D, Indiana University



Ben Jelen

PhD Student, Health Informatics, Indiana University



Anna Keune

Doctoral Student, Learning Sciences, Indiana University



Jee Kim

Lecturer, SoAA+D, Indiana University



Sarah Lasley

Lecturer, SoAA+D, Indiana University



Dennis Mu

Fashion Design and Culture Graduate Student, SoAA+D, Indiana University



Nitocris Perez

Emerging Technology Analyst, UITS, Indiana University



Jon Racek

Senior Lecturer, SoAA+D, Indiana University



Katie Siek

Director of Informatics Undergraduate Studies, Indiana University



Thompson

Graduate Student, Learning Sciences, Indiana University



Jiangmei Wu

Assistant Professor, SoAA+D. Indiana University

INDIANA UNIVERSITY FASHION TECHNOLOGY SYMPOSIUM

Goals

#IUFashionTech

Key goals of the workshop include:

- Presenting advances in technology with applications in fashion, e.g. robotics, IoT, smart and soft materials science, artificial intelligence, mind-reading devices, and visual analytics.
- Discussing promising fashion technology applications in health, sport, education, defense, entertainment, and other areas.
- Discussing relevant challenges regarding cybersecurity, privacy, and ethics.
- Advancing educational and training opportunities that combine fashion and technology, e.g., the design of IoT kits.
- Identifying synergies between academic, corporate, and governmental efforts and exploring possible sources of joint funding.

The symposium format will combine brief presentations, brainstorming sessions, tours of relevant resources at Indiana University, and hands-on sessions. Participants are invited to present their work during a live Cyberart and Fashion Technology Event. Other events include opportunities to engage attendees in hands-on sessions about the technologies central to the work.



Agenda #IUFashionTech

Day 1 – Friday, March 2, 2018

, wardi 2, 2010	
Welcome by Organizers (Katy Börner, Kylie Peppler, and Kate Rowold) Light lunch served.	Luddy Hall 1104
General Introduction by Participants	
Social Networking Break	
Opening Keynote Dana Kulić, Assistant Professor, University of Waterloo	Luddy Hall 1106
Brainstorm Fashion Technology Opportunities and Challenges	
Nexus Reception - Join us at the intersection of fashion and technology for an event that is part art exhibit, part fashion show, and part tech demonstration.	Luddy Hall, 4th floor
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Opening Keynote - Dana Kulić



Friday, March 2 3:00-4:00pm Luddy Hall 1106

Title: Designing Engaging Interactions through Movement: Experiments with Near Living Architecture

Abstract: Can architectural environments provide an engaging and emphathetic interaction with occupants? In this talk, we describe our work designing movement based interaction strategies for the Hylozoic Series architectural environments. We propose an approach for adapting the Intelligent Adaptive Curiosity learning algorithm previously introduced in the developmental robotic literature to distributed interactive sculptural systems. This Curiosity-Based Learning Algorithm (CBLA) allows the system to learn about its own mechanisms and its surrounding environment s through self-experimentation and interaction. A novel formulation using multiple agents as learning subsets of the system that communicate through shared input variables enables us to scale the learning algorithm to a much larger system with diverse types of sensors and actuators. Experiments on a prototype interactive sculpture installation demonstrate the exploratory patterns of CBLA and the collective learning behaviours through the integration of multiple learning agents.

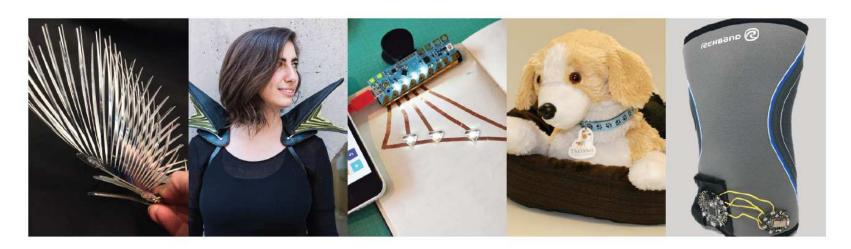
Bio: Dana Kulić received the combined B.A.Sc. and M.Eng. degrees in electromechanical engineering, and the Ph.D. degree in mechanical engineering from the University of British Columbia, Canada, in 1998 and 2005, respectively. From 2006 to 2009, she was a JSPS Postdoctoral Fellow and a Project Assistant Professor at the Nakamura Laboratory at the University of Tokyo. She is currently an Associate Professor at the Electrical and Computer Engineering Department at the University of Waterloo, Canada. She is an Associate Editor with the IEEE Transactions on Robotics and the ACM Transactions on Human-Robot Interaction. In 2014, she was awarded Ontario's Early Researcher award for her work on rehabilitation and human-robot interaction. Her research interests include human motion analysis, robot learning, humanoid robots, and human-machine interaction.



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Public events:

Nexus

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Friday, March 2, 5:30–7 p.m., Luddy Hall, 4th floor

Day 2 – Saturday, March 3, 2018					
8:30am	Breakfast	Wendell W. Wright School of Education 2261			
9:00am	 Tour Research, Design and Maker Spaces at Indiana University Make, Innovate, Learn Lab (MILL) - School of Education 2266 MAD LABS - Fine Arts 141 Sage Fashion Collection - Fine Arts 104 Visual Insights Studio - Luddy Hall 4012 3D Fabrication and Design Inquiry Labs - Luddy Hall 4010 	Wendell W. Wright School of Education 2266			
10:30am	Parallel Brainstorming Sessions	Luddy Hall 1104			
12:00pm	Lunch				
1:00pm	Second Best Ideas				
2:00pm	Social Networking Break				
2:30pm	Closing Keynote Yvonne Rogers, Professor of Interaction Design & Director of UCLIC, Deputy Head of Computer Science, University College London				
3:30pm	Closing Remarks	Luddy Hall 1104			
4:00pm	Adjourn				

Tours



The **Make**, **Innovate**, **Learn Lab** (**MILL**) provides educators, curious tinkerers, and inspired inventors a space to understand and demonstrate the guiding pedagogies behind making. The first of its kind to open on the IUB campus, the MILL is a place where IUB students and faculty can pursue teaching, learning and research on making that bridge across multiple disciplines.

The **MAD LABS** (Makerspace for Art + Design) are the digital fabrication labs for the School of Art, Architecture and Design. Since their inception in January of 2016 the MAD LABS have facilitated the research of individuals from Chemistry, Physics, Biology, Kinesiology, Art History, Kelley School of Business, Informatics, the Media School, Radio and Television, and all units from the School of Art, Architecture and Design.

The **Sage Fashion Collection**, overseen by the School of Art, Architecture + Design, serves as a research resource for students, professionals, and the public. Established in 1913, current holdings are in excess 24,000 objects of men's, women's, and children's dress and adornment. The collection's curators have pulled a few pieces that illustrate changing materials, technology, and approaches to adorning the human body.

The **Visual Insights Studio** is one of six teaching labs in the Intelligent Systems Engineering (ISE) Department. The VIS provides easy access to cutting-edge technologies including an ultra-high resolution large-scale display wall, audio equipment, HTC VIVE, and Microsoft HoloLens setups for data visualization, scientific visualization, and virtual/augmented /mixed reality R&D.

The **3D Fabrication and Design Inquiry Labs** in the School of Informatics, Computing, and Engineering are a rich network of design, digital inquiry, and physical computing development environments for students, faculty, and staff where learning experiences are channeled through hands-on activities. SICE digital fabrication spaces additionally serve as centers for STEM-oriented education outreach and community partnership building, as well as robust facilities to support the School's research efforts.

Closing Keynote - Yvonne Rogers

INDIANA UNIVERSITY
FASHION TECHNOLOGY SYMPOSIUM

Saturday, March 3 2:30-3:30pm

Title: Can Technology be Fashioned?

Abstract: The availability and affordability of mobile, wearable, tangible, physical, augmented reality and IoT technologies has made it possible for us to dream; conjuring up all manner of new designs, experiences, and augmentations. Designers, developers, school children, researchers and the general public now have an ever-increasing toolkit of possibilities at their fingertips by which to make, create and envelop bodies. But how do they choose what to do and which components to combine? Can technology be fashioned and fashion be technologized to make truly remarkable experiences but which are also grounded in utility and usefulness?

Bio: Yvonne Rogers is the director of UCLIC, an interdisciplinary centre that straddles the psychology and computer science departments at University College London. Her research interests lie at the intersection of human-computer interaction, behavioral change and physical computing. Much of her work is situated in the wild - concerned with informing, building and evaluating novel user experiences through creating and assembling a diversity of technologies (e.g. tangibles, internet of things) that augment everyday, learning, community engagement and collaborative work activities. She has been instrumental in promulgating new theories (e.g., external cognition), alternative methodologies (e.g., in the wild studies) and far-reaching research agendas (e.g., "Being Human: HCI in 2020" manifesto). She is a co-author of the definitive textbook on Interaction Design, now published in its 4th edition. Over 200,000 copies have been sold worldwide and the book has been translated into 6 languages. She has also published over 300 articles, including two monographs "HCI Theory: Classical, Modern and Contemporary" and "Research in the Wild". She was recently elected as a fellow of the ACM.





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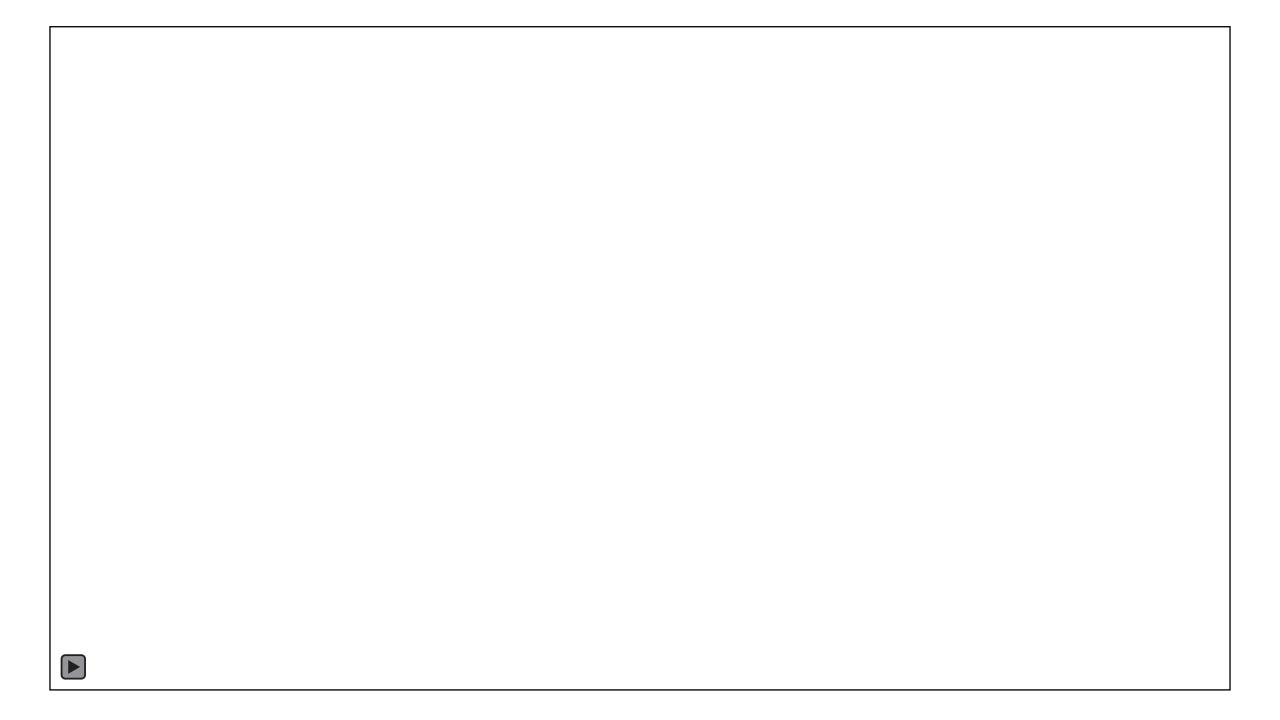
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General Introduction by Participants





Associate Professor of Computer Science and Engineering Department, Mississippi State University



Cofounder and Creative Director, Chibitronics.



Associate Professor, OCADU

University-Corpus Christi



Jacobs Postdoctoral Fellow, Stanford of Waterloo



Assistant Professor, University



Rahnemoonfar

Assistant Professor of Professor of Interaction Design Computer Science and Director & Director of UCLIC, Deputy of Computer Vision and Head of Computer Science, Remote Sensing Laboratory (University College London Bina Lab), Texas A&M



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Associate Professor of Learning Sciences, Director of the Creativity Labs, School of Education, Indiana University; Lead of the MacArthur Foundation's Make-to-Learn initiative.



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Indiana University



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Justin Bailey

Assistant Professor, SoAA+D Indiana University



Biggers

Director, CEWIT, Indiana University



Christiansen

Director of Undergraduate Studies, Senior Lecturer, SoAA+D, Indiana University



Heidi Davis-Soylu

Museum of Art, Indiana



Dolinsky

Director of Education, Eskenazi Associate Professor, SoAA+D, Indiana University



Peg Faimon

Dean of SoAA+D, Indiana



Pnina Fichman

Professor, Director - Rob Kling Center for Social Informatics, SICE. Indiana University



Lori Frye

Visiting Lecturer, SoAA+D. Indiana University



Ben Jelen

PhD Student, Health



Anna Keune

Doctoral Student, Learning Informatics, Indiana University Sciences, Indiana University



Jee Kim

Lecturer, SoAA+D, Indiana University



Sarah Lasley

Lecturer, SoAA+D, Indiana University



Dennis Mu

Fashion Design and Culture Graduate Student, SoAA+D. Indiana University



Nitocris Perez

Emerging Technology Analyst, UITS, Indiana University



Senior Lecturer, SoAA+D. Indiana University



Katie Siek

Director of Informatics Undergraduate Studies, Indiana University



Thompson Graduate Student, Learning

Sciences, Indiana University



Assistant Professor, SoAA+D Indiana University

19 = 30 in 120 mins



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Friday, March 2 3:00-4:00pm Luddy Hall 1106



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Title: Designing Engaging Interactions through Movement: Experiments with Near Living Architecture

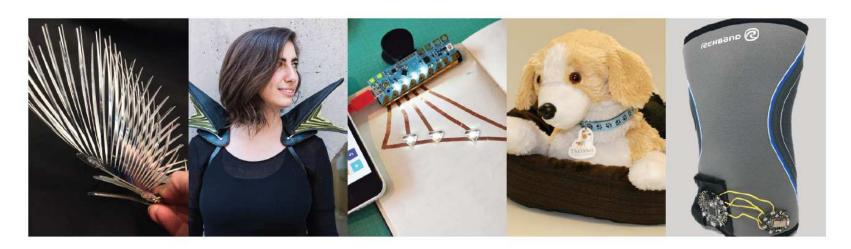
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Brainstorming: Opportunities & Challenges

Katy prepares and hosts





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Day 2





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3:30pm	Closing Remarks	Luddy Hall 1104			
4:00pm	Adjourn				



Parallel Brainstorming

Katy prepares based on Day 1 Brainstorm results and hosts

2nd Best Ideas

Katy prepares and hosts



Closing Keynote - Yvonne Rogers

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FASHION TECHNOLOGY SYMPOSIUM

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Closing Remarks

All organizers summarize the 2 days, provide an outlook

Upcoming Events:

- First Thursdays
- April 8, Trashion Refashion Runway Show, Buskirk-Chumley Theater
- April 11, FA Fashion Show
- Luddy Fest, https://www.sice.indiana.edu/luddyfest
- SICE Research Horizons