20th Annual Breakout Session Descriptions | November 1, 2023

Round 1: 9:25 AM – 10:15 AM

Exploring Artificial Intelligence

Location: Grand East *Intended Audience: Industry, Community, Education* **Computer or Tablet Recommended**

Have you heard a lot about artificial intelligence (AI) but are not sure how to bring it into your classroom or organization? Join MSOE's STEM team to learn more about the fundamentals of AI. We'll cover the 5 Big Ideas in AI and then have interactive stations to explore AI using microcontroller robots, machine learning driven robotic hands, and easy to access resources on the computer. You'll have a better idea of how AI works, some new activity ideas, and have a lot of fun playing with AI tools. Please bring your laptop for a more interactive experience (Wi-Fi info: Bartolottas-guest, password: BrgGuest!).

Presenters: Liz Taylor | *Milwaukee School of Engineering,*
Sarah Stelsel | *Milwaukee School of Engineering, STEM Program Coordinator*
Michael Meilicke | *Milwaukee School of Engineering, STEM Program Coordinator*

STEM Scholars: Engaging Students in STEM

Location: Grand Center *Intended Audience: Community, Education*

This session will go behind the scenes on the creation of our all-girls STEM Scholars program. From brainstorming its beginning to engaging students along the way, this session will provide the framework for others to create their own whole-person, applied STEM program in their organization or school. Our hands-on session will not only give participants the tools, resources, and handouts they need, but we will also provide time for your own "brainstorming beginning" to bring your STEM program to life. Audience members will learn the "how-to" for creating a STEM program and will begin to design the framework for their own program.

Presenters: Heather Mansfield | *Academic Dean, Divine Savior Holey Angels (DSHA) High School*
Connie Farrow | *Divine Savior Holy Angels (DSHA) High School*

Love the Problem

Location: Grand West *Intended Audience: Industry, Community, Education*

Between science and STEM fairs, project reviews, and open houses, students have lots of opportunities to show off their solutions and designs. Those solutions will never be as good as they can be if students don't love and deeply understand the problem they are trying to solve. This session is your opportunity to hear from students who love the problem they are working on and inspire them to think a little deeper, laterally, holistically, logically, or whimsically about that problem. You'll rotate between teams of students tasked to clearly convey the problem they are focused on, the assumptions behind that problem statement, how they plan to validate those assumptions, and what they don't yet understand. This is your chance to connect the dots for students between similar problems in different domains, who are doing interesting work in the area, and how others have understood the issue. Discussion of potential solutions is explicitly banned. This is about Loving the Problem.

Presenters: Pete Reynolds | *Learn Deep* Joost Allard | *Learn Deep*
Various Student Presenters

Follow Up with Thea Sahr

Location: Conference 1-2 *Intended Audience: Industry, Community, Education*

A follow-up session with morning keynote, Thea Sahr. Additional time for information and Q&A.

Breakout Session Descriptions | Round 2: 10:35 AM – 11:25 AM

Strategies and Best Practices for Teaching Data Science and AI Literacy

Location: Grand East *Intended Audience: Education*

This session will explore the curriculum and best practices of the UW-Milwaukee College for Kids & Teens and Northwestern Mutual Data Science Institute certificate program in data science. Our learning track consists of learning the basics of data science and how to use data in meaningful ways every day. We'll examine the importance of Python programming, the relationship between statistics and data, and how students can utilize data and design thinking to explore entrepreneurship. Finally, we'll highlight the importance of Data Literacy and how AI Literacy can enable students to critically evaluate, communicate, and collaborate with AI technologies.

Presenters: Mark Zachar | *NMDSI*
Ben La Duke | *UWM*
Patrick Williams | *UWM, AnYong Analytics LLC*
Quentin Prince | *UWM, Journey House, MKE Tech Hub Coalition*

Youth Apprenticeship: Unlocking a Talent Pipeline

Location: Grand Center *Intended Audience: Industry, Community, Education*

Youth Apprenticeship is a highly successful talent acquisition strategy in which employers hire high school juniors or seniors for a one or two-year apprenticeship. During the apprenticeship, the student continues toward high school graduation and takes courses related to the apprenticeship as a way of enhancing what is being learned on the job. The program is designed to meet the career-readiness needs of the student and the needs of business by preparing the next generation of workers. The YA Program has been connecting employers with high school student talent for over 25 years, creating a scalable and successful program with input from industry. The program is designed to keep local talent local. If you want to unlock a talent pipeline, come find out how to implement a YA program at your workplace!

Presenter: Erin Cherney | *Youth Apprenticeship Coordinator, College & Career Readiness at MPS*

Re-Imagine the Future with STEM, Project-Based Learning, & Service Learning – The Trifecta of Success

Location: Grand West *Intended Audience: Industry, Community, Education*

What happens when you take a STEM school, with a mission and vision of Project-Based Learning and Going Public with Student CapStone Projects, and then infuse this with Service Learning and Global Social Action! VOILÁ... You know have risen to the level of helping support the growth of a community of learners who are not only college and career-ready, but who also see the world beyond their school years as an opportunity, rather than a daunting leap of faith! Growing both their school relationships and the local community that they have grown up in, students are transformed into citizens, who are ready to help grow their community, friends, and move the world forward. How we prepare our students to build both the skill-sets and the relationships necessary to become greatly sought after masters of their own future is very important, and we strive to build caring, compassionate citizens, that extend beyond the four walls of a school!

Presenters: James Murray | *Waukesha S.T.E.M. Academy*
Greg Basthemer | *Waukesha S.T.E.M. Academy*

BREAKOUT ROUND 2 CONTINUES ON NEXT PAGE

Breakout Session Descriptions | Round 2 (Cont.): 10:35 AM – 11:25 AM

The Wizard of Waukesha – Les Paul: Inspiring Today's Students with the Engineer of Modern Music

Location: Conference 1-2 *Intended Audience: Community, Education* **Computer or Tablet Recommended**

Les Paul, inventor, musician, and sound engineer, may be known to many for the guitar that bears his name. Did you know, however, that he invented many of the innovations heard in modern music? He started as a curious youngster, in Waukesha, WI, exploring sound design and engineering. As a teen, he experimented with sound on sound using a player piano roll, amplified his acoustic guitar, and designed a flip-able harmonica holder. As an adult, he invented multi-track recording, sound on sound, delay, and reverb among many recording techniques. These music innovations have been used by endless artists including Slash, Joan Jett, Paul McCartney, and the late BB King.

Participants will learn how Les Paul changed the music recording industry with his inventions and innovations. Participants will explore connections between science, music, and engineering through the achievements of the Wizard of Waukesha. Classroom teachers will participate in hands-on activities incorporating Les Paul's life and innovations. The session will offer resources to help teachers inspire our young entrepreneurs, engineers, and music technicians to build their dreams through curiosity, persistence, and creativity. Laptops are encouraged to participate. (Wi-Fi info: Bartolottas-guest, password: BrgGuest!)

Presenter: Julie A. Palkowski, PhD | *The Les Paul Foundation*

Breakout Session Descriptions | Round 3: 1:40 PM – 2:30 PM

Amplifying STEM Enterprises in the Age of AI: Navigating & Exploding Opportunities

Location: Grand East *Intended Audience: Industry, Community*

Venture into a dynamic exploration of the transformative impact of AI on STEM enterprises. Whether you are an entrepreneur, a professional in a STEM company, or just intrigued by the fusion of STEM and AI, this session is crafted for you. Learn how to navigate the rapidly shifting landscape, harness AI's potential for innovation, and amplify operational efficiencies. Drawing from real-world experiences at Floor23 Digital, a technology and services company powering open innovation for large entities like NASA, we'll dive deep into the challenges, triumphs, and the myriad of opportunities that AI bring to the STEM enterprise.

Presenter: Candace Spears | *Floor23 Digital*

A Reflection Tool for STEM Programs

Location: Grand Center *Intended Audience: Education*

Preliminary description: What is your vision for your STEM program? How are you reflecting on progress? Content leaders from the Department of Public Instruction and local educators created a tool to support reflection on STEM programs. We'll review the tool together and look at case studies of STEM programs that have used and shared feedback on this tool. Reflect on their own STEM programs or support others in doing so.

Presenter: Kevin Anderson | *Wisconsin Department of Public Instruction*
Jessica Wiedenfeld | *Lincoln STEM Elementary School, Watertown School District*

The ROI of Business and Educational Partnerships

Location: Grand West *Intended Audience: Industry*

Businesses are struggling today to find talent to keep their businesses running so how does a business start to build their talent pipeline today for their future workforce needs? Join to hear how one medium-sized manufacturing is partnering with a school district to do just that. During this session, we will cover how the partnership started, how it has evolved over the years, what types of activities it includes and the ROI the business is earning as a result. Be prepared to walk away with tangible activities you can implement in the next 30 days.

Presenter: Leslie Fee | *J.W. Speaker*

Follow Up with Maynard Okereke

Location: Conference 1-2 *Intended Audience: Industry, Community, Education*

A follow-up session with luncheon keynote, Maynard Okereke. Additional time for information and Q&A.

20th Annual Keynote Speakers

Morning General Session

Messages Matter

Breaking Through to the Next Generation

Keynote Speaker: Thea Sahr

Thea Sahr is the Deputy Executive Director of Discover Engineering (DiscoverE), which leads a coalition dedicated to celebrating the accomplishments of engineers, technicians, and technologists and engaging K-12 students in engineering and tech.

Thea's professional experiences have been driven by her passions, and her routes have not been especially linear. *"As I look back on it, I see that I've had a series of interesting jobs that have turned out to be this really cool career,"* she says. Sahr has worked at the Museum of Science (Boston), Tufts University, WGBH (Boston's Public Television Station), and now DiscoverE. A particular focus of her work is dispelling STEM stereotypes and encouraging girls, students of color, and under-resourced youth to pursue STEM. This has led her to co-create Design Squad, a Peabody award-winning PBS television series, and conduct research and messaging campaigns for Engineer Your Life, Despite the Odds, and Messages Matter. Thea and her team at DiscoverE develop customizable resources volunteers and educators can use to celebrate engineering and engage students DiscoverE is the backbone organization behind Engineers Week™, Introduce a Girl to Engineering Day™, Chats with Change Makers, World Engineering Day, and the Future City Competition™.

Luncheon Keynote Session

Curiosity is Nature's PhD

Empowering the Next Generation of STEM Leaders

Keynote Speaker: Maynard Okereke

Maynard Okereke, better known as the Hip Hop M.D., graduated from the University of Washington with a degree in Civil Engineering. He is an award-winning Science Communicator, receiving the Asteroid Award for "Best Streaming Content" and the People of Change Award for his community outreach efforts. His passion for science and entertainment, along with his curiosity for innovation, has taken him through an incredible life journey.

Noticing a lack of minority involvement in the STEM fields, he created Hip Hop Science with the goal of encouraging minorities and youth to pursue more advanced career paths. His background in engineering, acting, music, business, and credible work in STEM make him uniquely qualified to engage on a wide variety of topics from an entertaining perspective. This is highly reflected in his speaking engagements and daily social media posts, which provide both humorous and informative SciComm content.