COC
COUNCIL OF CHAIRS
OF BIOENGINEERING AND BIOMEDICAL ENGINEERING

BMES
BIOMEDICAL ENGINEERING SOCIETY

# 5TH BIOMEDICAL ENGINEERING EDUCATIONAL SUMMIT

*Building diversity in the biomedical engineering workforce spanning academia to industry*

## MAY 29 - 31, 2024

## New Jersey Institute of Technology, Newark, NJ



*Campus Center, New Jersey Institute of Technology*

NJIT
New Jersey Institute
of Technology

TCNJ THE COLLEGE OF NEW JERSEY

STEVENS
INSTITUTE OF TECHNOLOGY
1870

NYU | TANDON SCHOOL OF ENGINEERING

# 5th Biomedical Engineering Educational Summit

## ORGANIZING COMMITTEE

### Conference Co-Chairs

Bryan Pfister, PhD, New Jersey Institute of Technology
Christopher Wagner, PhD, The College of New Jersey
Jennifer Kang-Mieler, PhD, Stevens Institute of Technology
Andreas Hielscher, PhD, New York University

### Program Committee

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Sarah Rooney, PhD, University of Delaware

Conference Website
https://biomedical.njit.edu/fifth-biomedical-engineering-education-summit

For information email:
bme@njit.edu

## Summit Objective

Evaluate our collective goals for biomedical engineering and to develop approaches to our challenges as we navigate an evolving student population with different teaching, motivational and support needs. Building diversity in the biomedical engineering workforce will be a focus and integrated throughout the program.

## Summit Program Format

The Summit is organized into 4 half-day themes. Each theme will begin with an opening expert plenary speaker followed by six parallel workshop sessions where each working group will explore, discuss, and make recommendations.  The workshops will be repeated so that each attendee can participate in three topic sessions.

## Summit Outcomes

- Participating in this Summit you will:
    - Define and refine the leading opportunities and challenges facing BME educational programs
    - Share your experiences with colleagues
    - Develop and propose approaches and solutions to the top issues
    - Take away ideas and strategies mastered by other programs
- To capture the discussions and conclusions from workshops to disseminate post-conference to attendees
- Broadly disseminate the accomplishments of the Summit in engineering education publications.

## Summit Location

Newark, New Jersey is located in close proximity to Newark International Airport, Amtrak's Northeast Corridor, Newark Pennsylvania Station, and less than a 20-minute commute from Manhattan, NYC. The NJIT campus is a few miles off Interstate 95, the NJ turnpike, and has ample on-campus parking available for free. There are many hotels close to NJIT campus, several in walking distance or a short light rail ride to the center of campus.



*Stevens Institute of Technology*

## Special Event
May 30 - Dinner at Stevens Institute of Technology overlooking the Hudson River and Manhattan, NY.

**Summit Registration:** Registration and hotel booking will open in December 2023.

**Travel Awards**: Apply for travel awards, for information please see the Summit Website.

11:00 - 1:00   **Registration Open**

1:00 - 2:00   **Summit Welcome and Keynote Speaker;** *Sunita Mishra, MD, MBA, Chief Medical Officer for Amazon Health Services*

*Theme 1*: *Update on strategies for enhanced learning environments and evidence based practices in undergraduate programs.*

2:00 - 2:45   **Theme Plenary Speaker;** *Maribel Vazquez, PhD, Professor, Biomedical Engineering, Rutgers University*

2:45 - 3:00   **Coffee Break**

3:00 - 3:50   **Parallel Workshop Sessions**

**1:** The evolution of teaching and learning styles in the post-pandemic era.

**2:** Effective learning and teaching strategies in small and large classrooms. (Adopting instructional approaches in BME-specific courses such as: Introduction to BME, Physiology, Biomechanics and Biotransport).

**3:** Incorporating DEI into instruction and interpreting the new ABET criteria.

**4:** Strategies to incorporate ChatGPT/AI in BME curriculum.

**5:** Approaches and innovative techniques to teach senior design.

**6:** Opportunities for experiential learning in the BME curriculum.

*All workshop sessions will be repeated so that you can attend 3 of the topics.*

4:00 - 4:50   **Parallel Sessions Repeat I**

5:00 - 5:50   **Parallel Sessions Repeat II**

6:30 - 8:30   **Dinner at NJIT - Opening Reception**

8:30 - 10:00   **Social/Networking Activity**

# Thursday, May 30

7:00 - 8:00      **Breakfast**

*Theme 2: Resources for student and faculty success.*

8:00 - 8:45      **Theme Plenary Speaker:** *Kay C. Dee, PhD, Associate Dean of Learning and Technology and Professor of Biology and Biomedical Engineering, Rose-Hulman Institute of Technology.*

9:00 - 9:50      **Parallel Workshop Sessions**

**1:** Student engagement, participation, and attendance.

**2:** Academic integrity and use of ChatGPT in BME curricula (focus on communicating restrictions and conveying when crossing into academic integrity violations - role of faculty in integrity investigations).

**3:** Promoting instructional and TT faculty success, professional training, and individual mentorship.

**4:** Models for regional programs to work together more closely, including shared resources and collaborative teaching.

**5:** Student support: Mental health and sense of belonging while maintaining educational rigor and curricular success.

**6:** Promotion and acceptance of inclusion; University training to departmental engagement – student advising to faculty mentorship.

*All workshop sessions will be repeated so that you can attend 3 of the topics.*

10:00 - 10:50  **Parallel Sessions Repeat I**

11:00 - 11:50  **Parallel Sessions Repeat II**

12:00 - 1:00    **Networking Lunch**

# Thursday, May 30

*Theme 3: The future of graduate programs in biomedical engineering.*

1:00 - 1:45　　*Theme Plenary Speaker; Soumyadipta Acharya, MD, MSE, PhD, Assistant Professor, Biomedical Engineering, Johns Hopkins University.*

2:00 - 2:50　　**Parallel Workshop Sessions**

**1:** Structures for interdisciplinary co-mentored research training that bridges biology, engineering, computer and data science chemistry, and medicine.

**2:** Preparing students for academic post-PhD careers in the AI era.

**3:** Integration of entrepreneurship and commercialization training in graduate BME curricula.

**4:** Industry and multi-institution interdisciplinary partnerships and their role in graduate BME curricula.

**5:** Discussions on the value-added proposition for BME Masters programs and views from industry.

**6:** Strategies to increase diversity and inclusion among students and faculty in graduate BME programs.

*All workshop sessions will be repeated so that you can attend 3 of the topics.*

3:00 - 3:50　　**Parallel Sessions Repeat I**

3:50 - 4:10　　**Coffee Break**

4:10 - 5:00　　**Parallel Sessions Repeat II**

5:00 - 6:30　　**Buses to Stevens Institute of Technology**

6:30 - 10:00　　**Dinner at Stevens Institute of Technology**

# Friday, May 31

7:00 - 8:00     **Breakfast**

*Theme 4: Industry-readiness skills for an evolving and diversified job market.*

8:00 - 8:45     **Theme Plenary Speaker;** *Arda Ural, PhD, Americas Industry Markets Leader for Life Sciences and Healthcare at Ernst & Young LLP.*

9:00 - 9:50     **Parallel Workshop Sessions**

**1:** What are the most critical industry readiness skills and are our programs designed to build upon these skills?

**2:** The importance of data science in BME education.

**3:** Challenges with capstone experience to maximize workforce readiness and meet students' expectations.

**4:** Integration of extra- and co-curricular topics to increase student employment success.

**5:** Benefits to the BME employers from specialized credentials or certifications such as Solidworks, "Grow with Google" or "Pathway for Patient Health."

**6:** Important topics and instructional approaches for preparing students for DEI in the workforce.

*All workshop sessions will be repeated so that you can attend 3 of the topics.*

10:00 - 10:50   **Parallel Sessions Repeat I**

11:00 - 11:50   **Parallel Sessions Repeat II**

12:00 - 2:00    **Closing Lunch and Keynote 2**

*Scan the QR code for registration, accommodations and more information*