BME-IDEA: Empowering + Connecting Design Educators

Presenters:
Katie Reuther, PhD, MBA (Penn)
Eric Richardson, PhD (Duke)
Sabia Abidi, PhD (Rice)
Aaron Kyle, PhD (Duke)

Agenda

- What is BME-IDEA? Celebrating 20 Years…
- Our Stories
- White Paper Preview
- How to Get Involved
- Discussion

What is BME-IDEA?

History

- **B**io**M**edical **E**ngineering **I**nnovation **D**esign and **E**ntrepreneurship **A**lliance
- First meeting was in San Francisco in 2003
- Organized by:


Paul Yock


Paul King


Christine Kurihara


Phil Weilerstein


Jack Linehan

Introduction

- **WHO→**
  - >100 faculty, staff from leading universities teaching experiential undergraduate, graduate, and post-graduate training programs focused on health technology innovation

- **WHAT→**
  - Discuss common challenges
  - Brainstorm new directions in BME innovation education

- **WHEN→**
  - Meet approximately every year, before the BMES annual meeting

Our Experiences with BME-IDEA

Aaron Kyle
Professor of the Practice,
Biomedical Engineering,
Duke University

Katie Reuther
Executive Director, Penn Health-Tech; Practice Associate Professor, Bioengineering, UPenn

Eric Richardson
Professor of the Practice,
Biomedical Engineering,
Duke University

Sabia Abidi
Assistant Teaching Professor,
Bioengineering,
Rice University

Community of Practice

Introduction

Introduction

BME IDEA international

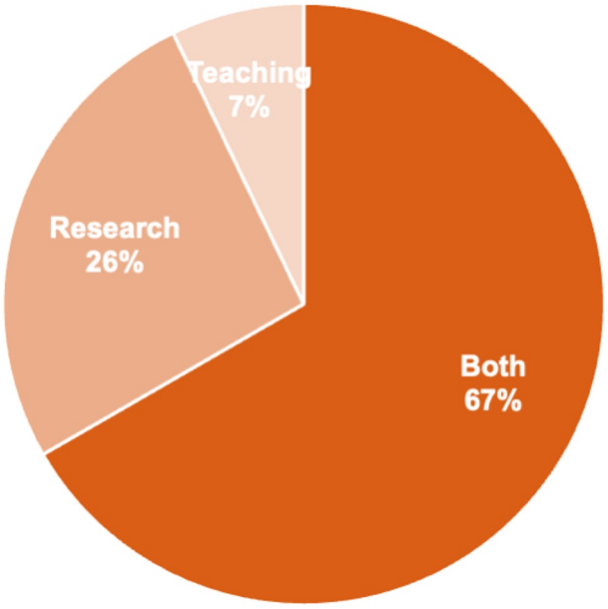
Goals

- **Share experiences and best practices** of different university programs involved in teaching innovation, design, technology transfer, and entrepreneurship in biomedical engineering education
- **Discuss objectives, challenges, and opportunities** for further development of these programs- including industry and academic perspectives
- Explore the potential for **creating community-wide tools and sharing resources**.

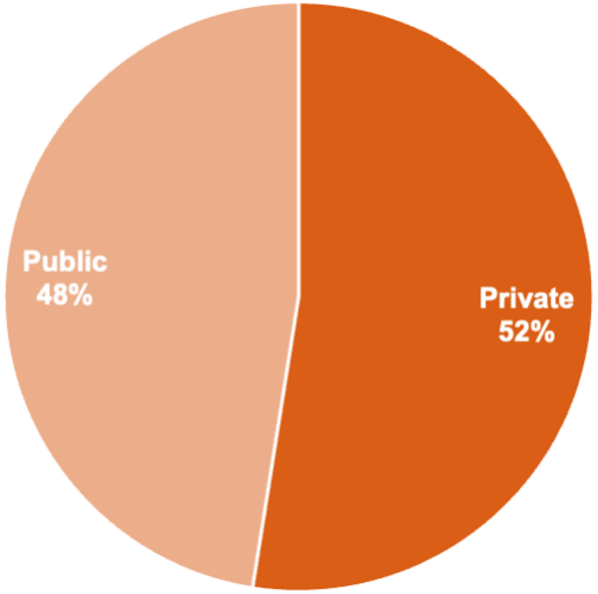
BME-IDEA Survey Results

What does the BME-IDEA community look like?

Institution Type



(n = 42)



(n = 40)

BME-IDEA Survey Results

What are the strengths and weaknesses in design programs?

(n = 42)

Strengths and Weaknesses of Program	Ranked order
Innovation & Prototyping	1
Documentation, Communication & Teamwork Focus	2
Access to Subject Matter/Industry Expertise/Project Advising	3
Clinical Access/Support Throughout Design Process	4
Facilities & Funding	5
Needs Finding	6
What happens to student design projects (IP, clinical testing, commercialization, etc,)	7
DEI in Design	8
Other	9

BME-IDEA Survey Results

What is the community interested in discussing?

(n = 49)

Areas of Interest	Ranked order
Course logistics (What to do with old design projects, appropriate feedback, multidisciplinary projects, project selection, resources for teaching, teamwork, student/project assessment, course design)	1
Best practices in commercialization and entrepreneurship	2
Global Health	3
Community of practice	4
Needs-finding and clinical immersion	5
Concept generation, prototype development and testing	6
DEI	7
Defining value associated with a need	8
Generative AI and design projects	9
Other	10

Identified in interviews

White Paper Preview

- Survey Summary
- Historical Summary
- Snapshot Summary
- Roundtable Discussion Highlights
- Brainstorming Summary

Preview of White Paper

- Survey Summary
- Historical Summary including advice for future
- Snapshot Summary
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Preview of White Paper
Historical Summary

Unmet need identified at Whitaker meeting
design instructors' needs not met by society meetings

Early value of meetings
from larger community

Output
including website, white paper and design competition

International growth among community

Preview of White Paper

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Preview of White Paper
Snapshot Summary

Course Logistics

- Vertically Integrated Design (Charles Peak, Texas A&M University)
- Generative AI in Bioengineering Capstone: Challenges and Opportunities (Ross Venook, Stanford University)

Commercialization and Entrepreneurship

- Write it Down!- Design Deliverables Aligned with FDA's Design Control (Michelle Zwernemann, Johns Hopkins University)
- Johns Hopkins University Center for Bioengineering Innovation and Design (Youseph Yazdi, Johns Hopkins University)

Diversity, Equity, and Inclusion

- Integration of DEI Into Core BME Courses (Sonia Bansal, Duke University)
- A "Small Wins" Model for Improving DEIB in Your Course/Program (Lyn Denend, Stanford University)

Global Health

- Establishing Meaningful Bi-Directional Relationships with Global Partners That are Built to Last (Matthew Wettergreen, Rice University)







Preview of White Paper

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Preview of White Paper
Roundtable Discussion Summary

20TH ANNIVERSARY BME IDEA 2023

Course Logistics

- How do you find good project ideas, partners?
- How do you structure grading for real world projects with real challenges?
- How do you balance documentation vs doing?

Commercialization and Entrepreneurship

- How do we balance educational objectives with entrepreneurial objectives in our design courses?
- How do you deal with intellectual property for undergraduates, particularly when collaborations with faculty or companies are involved?
- How do you select and support projects for better “success” (commercial and otherwise)?

Diversity, Equity, and Inclusion

- How do you bring Diversity, Equity, and Inclusion into the Classroom?
- Challenges and Potential Approaches

Global Health

- How do you initiate a successful global collaboration?
- How do you handle the legal, financial, and administrative challenges of a collaboration?

Preview of White Paper

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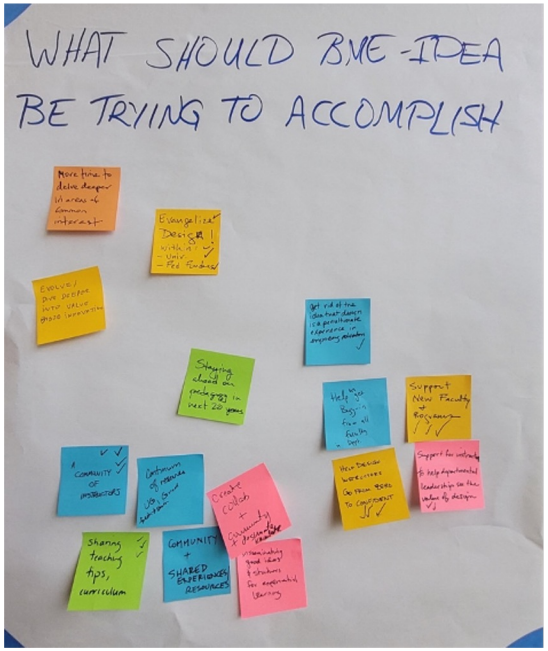
Brainstorming Summary



20TH ANNIVERSARY BME IDEA

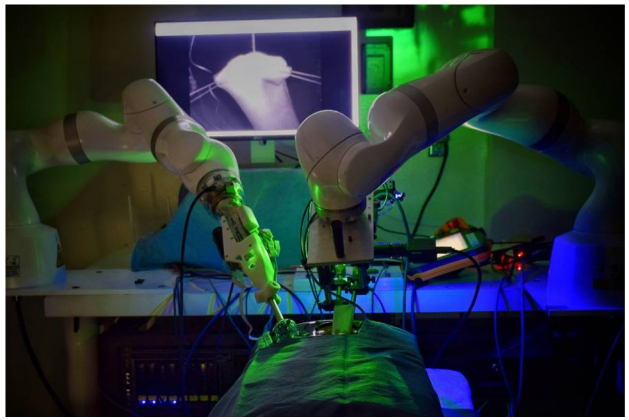
BME-IDEA Meeting

2024 BME-IDEA Meeting (Oct. 22 & 23)

Day 0

Welcome Reception & Networking

Tour of Design & Robotics Spaces (JHU)



Dinner

Day 1

Networking

Panel Discussions & Roundtables

Snapshot Presentations

International Stakeholders

Opportunity to Get Involved!

Working Session Topic

Looking for some help from your colleagues on a part of your design course or program?

Submit a brief descriptive title and 3-4 sentence summary on a topic of interest that you've been working on (e.g. needsfinding, teamwork, improving DEI in Capstone, commercialization, funding etc) to BME-IDEA alongside your registration (coming out June 2024!).

We will get back to you by August on whether your topic was selected for discussion! If selected, you will be asked to ***share pre-work and reading for review by the group.*** *The attendees will be encouraged to* ***review BEFORE attending and also bring relevant work to advance discussion.***

Win-win for all!

Opportunity to Get Involved!

Snapshots

Looking to share a new approach, framework, or intervention with the community in a brief snapshot style?

Look out for the BME-IDEA registration form in June 2024 for more information. We will select from submissions and let you know by August!

BME-IDEA Slack Channel

BME-IDEA Website

Thank You and Discussion

Tell us about yourself!

We hope to see you in Baltimore in October!

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