
2024 IMAG – MSM Consortium Meeting:
Setting Up Teams for Biomedical Digital Twins (BDT)
September 30 – October 2, 2024, Rockville, MD

Moderators and
Presenter Guide

OVERVIEW

MEETING

Date, Time, and Place of Meeting

Monday, September 30, 2024, 8:30 am – 5:00 pm

Tuesday, October 1, 2024, 8:30 am – 5:10 pm

Wednesday, October 2, 2024, 8:30 am – 3:30 pm

Neuroscience Center Building (NSC)

6001 Executive Boulevard

Rockville, MD 20852

KEY Function | Room Number

- 1 Main Meeting Space | Rooms 1155, 1145, 1135, 1131
Day 1, 3: Breakout Room A
Day 2: Breakout Room A, B
- 2 Poster Room | Rooms 1125, 1121
- 3, 4 Breakout Room B | Rooms 1185, 1175, 1165
- 5 AM Refreshments
- 6 Entrance
- 7 PM Refreshments
- 8 Restrooms
- 9 Security
- 10 Check In and Registration
- 11 Parking
- 12 Entrance/Walkway to Breakout Room C and Speaker Ready Room
- 13 Speaker Ready Room | Room 1275
- 14 Breakout Room C | Rooms 1265, 1255 (Days 1 and 3)



LOGISTICS

Check In

Security | *Please allow up to 30 minutes to pass thru Security.*

Welcome and Check In | Please check in at the Speaker Welcome Desk in the lobby, first floor as you arrive at the Meeting. We will provide any updates and welcome receiving your presentation.

Zoom | Your presentation will be recorded. Should you not wish to have your presentation be recorded, please notify us as you check in. We will have release forms on-site at the Speaker Welcome Desk if you did not have a chance to complete the form online.

Upload and Record Presentation | Please plan to upload your presentation to the IMAG wiki the day prior to your presentation. We will send you instructions to record your presentation for posting into the Tutorial section of the IMAG wiki after the meeting is over.

Lectern Test Run | Please see the AV Tech at the beginning of the break before your presentation to do a brief equipment orientation, to familiarize yourself with the controls and sightlines, and to check that everything is in good order with your presentation. Should you plan to play videos, the test run is critical. At this the time you may indicate any special requirements, such as lighting, etc.

Layout | The room will be set up with theater style seating. The lectern will be at the front of the room and will have a confidence monitor, keyboard and mouse, gooseneck microphone, a laser pointer, and a timer. The seats near the lectern will be reserved for speakers and moderators.

Run of Program

Main Meeting

Session and Format | Moderators are to introduce the session and each speaker. Speakers' presentations will be 10 or 30 minutes, including time for a question-and-answer session. Please view each agenda item on the Wiki for specific instructions for your session

Question and Answer | Participants from the audience will line up at the standing microphones throughout the meeting room for the question-and-answer section of the program. You may ask participants to identify themselves and their affiliation.

Zoom Questions | All attendees are being asked to post comments on the IMAG Wiki under in the session pages of the agenda item. The session page will be projected on the meeting screen to review during the meeting. Please keep an eye on these pages to help respond to the attendee questions by posting on the IMAG wiki.

Bell and Timer | A timer will be on the lectern. When you have 5 minutes of time remaining, a yellow light on the lectern will appear. When the speaker presentation time has ended, you will be signaled by a red light. A bell will sound in the meeting room when your presentation time has ended.

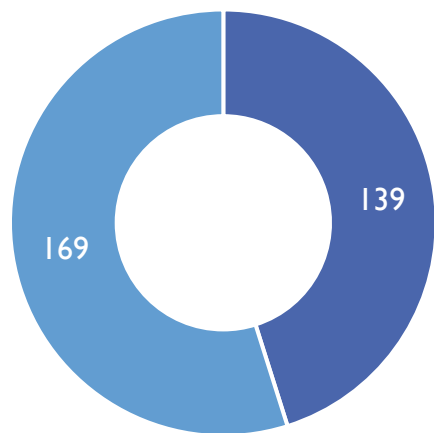
Panel Table | You will have a push button microphone. Please remember to turn it off when not speaking. Additionally, water, notepaper, and pens will be at the Panel table. We will be pleased to provide any other aids or materials that you may need.

Breakouts

Scribes | A writing table will be set for you if you wish to use it. Please bring your laptop to monitor the Q&A on the Zoom call and forward any questions to the breakout moderator. The Zoom URLs will be posted to the IMAG wiki .

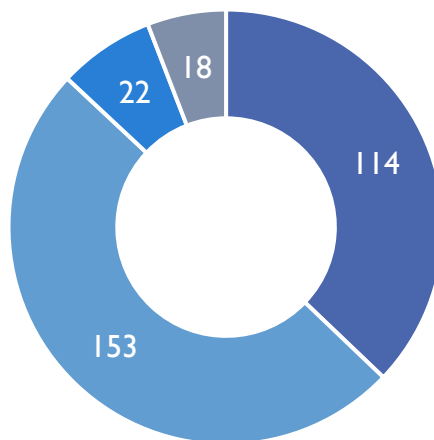
AUDIENCE PROFILE

Attendance Method



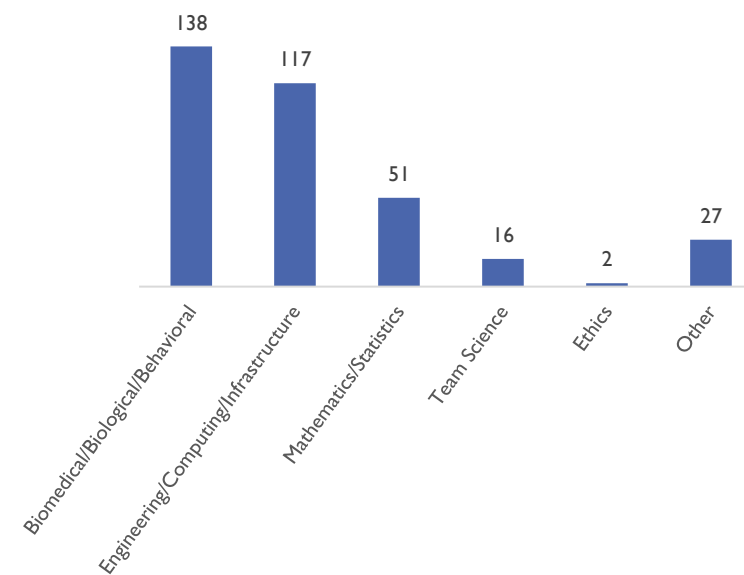
■ Attending Virtually ■ Attending in Person

Audience Affiliation



■ Federal Employee/Contractor ■ Academia ■ Industry ■ Other

Area of Expertise



MAJOR ROLES

Moderator

Speaker/Panelist

Scribe

U.S. Department of Health & Human Services

IMAG Interagency Modeling and Analysis Group

HOME ABOUT IMAG NEW

Session #1: Generating Requirements for BDT

Breakout Room A: Verification, Validation, and Uncertainty (VVUQ); Mathematical and Statistical Foundations for BDT

Breakout Room B: Physical Assets/Data Collection/Sensors; Virtual to Physical Control Algorithms/Expert in the Loop

Breakout Room C: Ethical, Security Issues; Team Science, Governance

Introduction: Michelle Bennett

Breakout Room A: Reinhard Laubenbacher, Anirban Chaudhuri
Scribes: Virginia Pasour, Fariba Fahroo

Breakout Room B: Julian Goldman, Sandy Weininger
Scribes: Julia Berzhanskaya, Yulia Gel

Breakout Room C: Barbara Evans, Michelle Bennett
Scribes: Hannah Dueck, Elena Sizikova

1.6 - Breakout Session 1: Generating Requirements for BDT

[Log in](#) or [register](#) to post comments

[Back to 2024 Agenda](#)

Breakout Session Goal: To develop requirements for BDTs

Charge to Speakers:

The lead for each breakout room will present their thoughts for what they think (straw person) the BDT requirements should be, based on the Group Discussion Questions, below. They will show their starting point using a Miro board or slides. There will be two rounds of this exercise.

Charge to Scribes:

AGENDA

Day 1

Day 1 - September 30, 2024			Location & Additional Info.
8:00 AM	8:30 AM	Check-in at Registration Desk Set Up Posters	Lobby
Morning Session			
8:30 AM	8:45 AM	Welcome - Meeting Vision and Goals Grace Peng (IMAG) Gary An (MSM)	Main Meeting Room
8:45 AM	9:15 AM	NASEM Digital Twin Definition and Application to Biomedical Research Speaker: Caroline Chung Moderator: Gary An	Main Meeting Room
9:15 AM	10:15 AM	Panel Discussion: Unique Features of Biomedical Digital Twins: Examples of Pre-Meeting Exercise #1 Speakers: William Lytton, Carlos Lopez, Gary An, Peter Hunter Moderator: Caroline Chung	Main Meeting Room
10:15 AM	10:45 AM	AM Refreshments (Courtesy of the Society for Mathematical Biology) View Posters	Poster Room
10:45 AM	11:45 AM	Breakout Discussion: Apply the NASEM Definition to Your Biomedical Digital Twin Idea - Addressing Fit for Purpose Lead Moderator: Michelle Bennett Room Moderators: Caroline Chung, William Lytton, Carlos Lopez, Gary An, Peter Hunter	Main Meeting Room
11:45 AM	1:00 PM	Lunch and Networking View Posters Post BDT Ideas	Pike & Rose
Afternoon Session			
1:00 PM	1:30 PM	Addressing Gaps and Challenges for Successful BDT Implementation - Part 1 Presentation of Technical Components <i>What is missing from the BDT Loop?</i> Introduction: Describe Necessary Components Beyond Fit-for-Purpose Speakers: Reinhard Laubenbacher, Julian Goldman, Michelle Bennett, Barbara Evans Moderator: Gary An	Main Meeting Room
1:30 PM	2:00 PM	Addressing Gaps and Challenges for Successful BDT Implementation - Part 1 Presentation of Social Components <i>What is missing from the BDT Loop?</i> Introduction: Describe Necessary Components Beyond Fit-for-Purpose Speakers: Reinhard Laubenbacher, Julian Goldman, Michelle Bennett, Barbara Evans Moderator: Gary An	Main Meeting Room
2:00 PM	2:30 PM	Breakout Session #1: Generating Requirements for BDT Introductions	Breakout Rooms A, B, and C Michelle Bennett
2:30 PM	3:15 PM	Round 1	
3:15 PM	4:00 PM	Round 2 Breakout Room A: Verification, Validation, and Uncertainty Quantification (VVUQ); Mathematical and Statistical Foundations for BDT Breakout Room B: Physical Assets/Data Collection/Sensors; Virtual to Physical Control Algorithms/Expert in the Loop Breakout Room C: Ethical, Security Issues; Team Science, Governance	Reinhard Laubenbacher, Anirban Chaudhuri Scribes : Virginia Pasour, Fariba Fahroo Julian Goldman, Sandy Weininger Scribes : Julia Berzhanskaya, Yulia Gel Barbara Evans, Michelle Bennett Scribes : Hannah Dueck, Elena Sizikova
4:00 PM	4:30 PM	PM Refreshments (Courtesy of the Society for Mathematical Biology) View Posters Post BDT Ideas	Poster Room
4:30 PM	4:55 PM	Preparing for Teaming Day 2: Create Initiative BDT Teams Around BDT Ideas Moderator: Michelle Bennett	Main Meeting Room
4:55 PM	5:00 PM	Conclude Day 1 Speakers: Grace Peng, Gary An, Michelle Bennett	Main Meeting Room
5:00 PM		Adjourn, day 1 - Dinner & Bocce	Pinstripes

AGENDA

Day 2

Day 2 - October 1, 2024			Room, Level
8:00 AM	8:30 AM	Check-in at Registration Desk View poster comments	Lobby
Morning Session			
8:30 AM	8:45 AM	Welcome Back - Recap from Day 1 Speakers: Grace Peng, Julia Berzhanskaya, Eric Stahlberg, Michelle Bennett	Main Meeting Room
8:45 AM	9:15 AM	Report Back on Requirements Template for BDT Speakers: Gary An, Reinhard Laubenbacher, Ralph Smith, Julian Goldman, Sandy Weininger, Michelle Bennett	Main Meeting Room
9:15 AM	10:15 AM	First BDT Ideas Teaming Session Breakout Discussion Round #1: "Getting Started: Using the Definition" Moderator: Michelle Bennett	Main Meeting Room
10:15 AM	10:45 AM	AM Refreshments (Courtesy of the Society for Mathematical Biology) View Posters	Poster Room
10:45 AM	11:45 AM	Addressing Gaps and Challenges for Successful BDT Implementation - Part 2 Deeper Dive into BDT Components Speakers: Natalia Trayanova, Ralph Smith, Barbara Evans Maria Eduarda Montezzo Coelho Moderator: Julia Berzhanskaya	Main Meeting Room
11:45 AM	12:00 PM	Introduction to Breakout Group Session #2: Generating Assessment Criteria for BDT Speaker: Michelle Bennett	Main Meeting Room
12:00 PM	1:15 PM	Lunch and Networking View Posters Post BDT Ideas	Pike & Rose
Afternoon Session			
1:15 PM	2:45 PM	Breakout Session #2: Generating Assessment Criteria for BDT Breakout Room A: Modularity/Interoperability/Systems of Systems Mindset Breakout Room B: Sustainability, Regulatory Issues Breakout Room C: Data/Knowledge Systems	Breakout Rooms A, B, and C Natalia Trayanova, Peter Hunter <i>Scribes</i> : Zhilan Feng, Sandy Weininger Barbara Evans, Maria Eduarda Montezzo Coelho <i>Scribe</i> : Yulia Gel Ralph Smith, Eric Stahlberg <i>Scribes</i> : Yuliya Gorb, Julia Berzhanskaya
2:45 PM	3:15 PM	PM Refreshments (Courtesy of the Society for Mathematical Biology) View Posters Post & Respond to BDT Ideas	Poster Room
3:15 PM	3:45 PM	Report Out on Assessment Criteria Templates for BDT Speakers: Natalia Trayanova, Ralph Smith, Eric Stahlberg, Barbara Evans, Maria Eduarda Montezzo Coelho, Peter Hunter	Main Meeting Room
3:45 PM	4:30 PM	Second BDT Ideas Teaming Session Round #2: "Thinking About the Requirements and Assessment Criteria Templates" Moderator: Michelle Bennett	Main Meeting Room
4:30 PM	5:00 PM	BDT Teams Report on Progress Feedback and Feedforward Exercise Moderator: Michelle Bennett	Main Meeting Room
5:00 PM	5:10 PM	Conclude Day 2 Day 2 Accomplishments and Plans for Day 3 Speakers: Grace Peng, Julia Berzhanskaya, Eric Stahlberg, Michelle Bennett	Main Meeting Room

AGENDA

Day 3

Day 3 - October 2, 2024

			Room, Level
8:00 AM	8:30 AM	Check-in at Registration Desk Review Posters	Lobby
Morning Session			
8:30 AM	8:45 AM	Welcome Back - Recap from Day 1 & Day 2 Speakers: Grace Peng, Hannah Dueck, Michelle Bennett	Main Meeting Room
8:45 AM	9:00 AM	Recap: Requirements Template and Assessment Criteria/Questions Moderator: Hannah Dueck	Main Meeting Room
9:00 AM	10:00 AM	Third BDT Ideas Teaming Session Round #3: "Creating a Pitch: Putting it All Together" Moderator: Michelle Bennett	Main Meeting Room
10:00 AM	10:30 AM	AM Refreshments (Courtesy of the Society for Mathematical Biology)	Poster Room
10:30 AM	12:30 PM	Pitches and Testing Assessment Criteria Pitches by BDT Idea Teams Breakout Room A: Felim Mac Gabhann Breakout Room B: Bruce Lee Breakout Room C: Carlos Lopez	Breakout Rooms A, B, and C
12:30 PM	1:45 PM	Lunch and Networking	Pike & Rose
Afternoon Session			
1:45 PM	2:15 PM	Full Group Debrief on Pitch/Review Sessions Presenter: Michelle Bennett	Main Meeting Room
2:15 PM	2:45 PM	Next Steps for: BDT Idea Teams and IMAG/MSM and BDTs Moderators: Gary An, Hannah Dueck	Main Meeting Room
2:45 PM	3:30 PM	Conclude Conference Moderator: Grace Peng	Poster Room

NETWORKING EVENTS

Day 1

Attended Poster Session - Poster Rooms

(10:15 - 10:45am, 4:00 - 4:30pm)

Lunch and Networking - Pike & Rose

(11:45 - 1:00pm)

Happy Hour and Dinner - Pinstripes
Bethesda

(5:30 - 7:00pm)

11920 Grand Park Ave.
North Bethesda, MD 20852

Day 2

Attended Poster Session - Poster Rooms

(10:15 - 10:45am, 2:45 - 3:15pm)

Lunch and Networking - Pike & Rose

(12:00 - 1:15pm)

Day 3

Attended Poster Session - Poster Rooms

(10:00 - 10:30am)

Lunch and Networking - Pike & Rose

(12:30 - 1:45pm)

CONTACT DETAILS

Last Name	First Name	Affiliation	Email	Presenting
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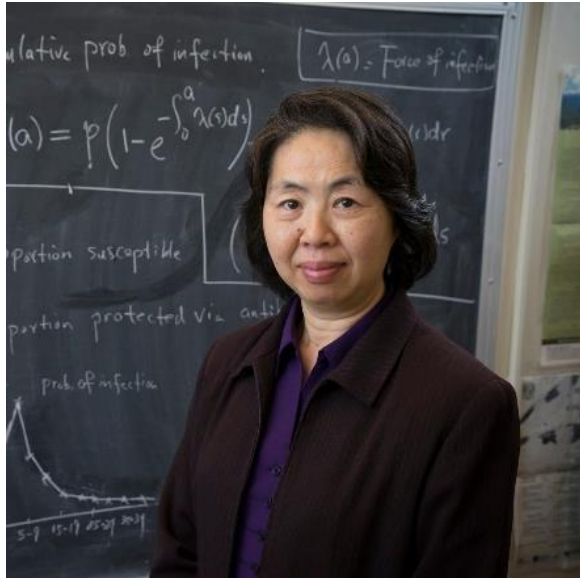


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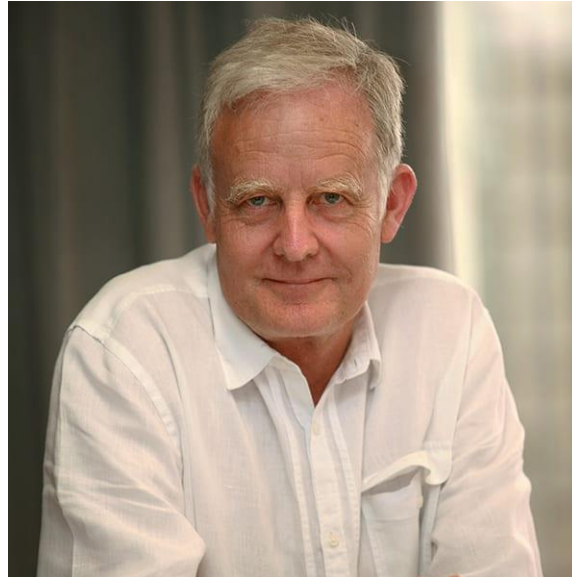
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Peter Hunter

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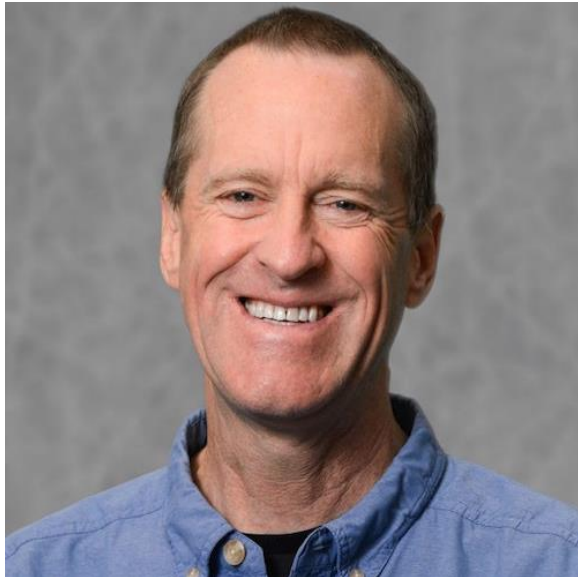


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Sandy Weininger

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ONLINE CONNECTION

- IMAGwiki: [Interagency Modeling and Analysis Group \(nih.gov\)](https://www.nih.gov/interagency-modeling-analysis)
- Zoom

THANK YOU

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