



Advances in Multimodal Artificial Intelligence to Enhance Environmental and Biomedical Data Integration

June 14-15, 2023

THE NATIONAL ACADEMIES OF SCIENCES, ENGINEERING, AND MEDICINE
500 5TH ST NW, WASHINGTON, DC 20001

FOR REGISTRATION AND MORE INFORMATION, PLEASE VISIT THE [WORKSHOP WEBSITE](#)
ALL TIMES LISTED ARE IN EASTERN TIME

This workshop will be webcast

How can artificial intelligence be used to accelerate data integration to further understanding of complex health challenges? Driven by increasing growth in data collection and availability as well as computing power, artificial intelligence and machine learning applications are rapidly growing in all areas, including research and health applications. In this workshop, experts will discuss opportunities for leveraging new and cutting-edge developments in artificial intelligence and machine learning to help integrate heterogeneous data (e.g., genomics, epigenomics, exposomics, geospatial information, data from wearables, electronic health records). Workshop speakers will also highlight emerging technologies and explore the ethical, social, and policy implications of large-scale environmental health and biomedical data collection and integration.

WEDNESDAY JUNE 14, 2023 10:00 AM – 4:30 PM ET Room 106

9:15 Registration

10:00 Welcome and Opening Remarks—**Andrea Baccarelli***, Columbia University, Co-Chair of the Standing Committee on the Use of Emerging Science for Environmental Health Decisions

10:10 **SESSION 1: ON THE HORIZON: THE CONVERGENCE OF ARTIFICIAL INTELLIGENCE, ENVIRONMENTAL HEALTH, AND BIOMEDICINE**

Patrick Breyse, John Hopkins University

Lucila Ohno-Machado, Yale University

Marzyeh Ghassemi, Massachusetts Institute of Technology

Moderator: **Megan W. Latshaw*†**, John Hopkins University

10:45 Session 1 Panel Discussion

11:20 Break

11:25 **SESSION 2: LEVERAGING AI/ML FOR ENVIRONMENTAL HEALTH AND BIOMEDICAL DATA INTEGRATION**

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Chirag Patel, Harvard University

Aidong Zhang, University of Virginia

Heidi Hanson, Oak Ridge National Laboratory

Moderator: **David Reif**, National Institute of Environmental Health Sciences

12:00 Session 2 Panel Discussion

12:35 Break

2:00 **SESSION 3: EMERGING METHODS FOR DATA INTEGRATION**

Karim Lekadir, University of Barcelona

Joyce Ho, Emory University

Thomas Hartung, John Hopkins University

Moderator: **Yao-Yi Chiang*†**, University of Minnesota

2:35 Session 3 Panel Discussion

3:10 Break

3:20 **REMARKS FROM RICHARD WOYCHIK, NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES**

3:30 **KEYNOTE ADDRESS: ERIC TOPOL, THE SCRIPPS RESEARCH INSTITUTE**

3:45 **FIRESIDE CHAT: ERIC TOPOL, THE SCRIPPS RESEARCH INSTITUTE, AND RICHARD WOYCHIK, NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES**

Moderator: **Lucila Ohno-Machado**, Yale University

4:15 Closing Remarks—**Carmen Marsit***, Emory University

4:30 Adjourn Day 1

THURSDAY JUNE 15, 2023 10:00 AM – 1:30 PM ET Room 100

10:00 Welcome—**Andrea Baccarelli***, Columbia University, Co-Chair of the Standing Committee on the Use of Emerging Science for Environmental Health Decisions

10:05 **SESSION 4: PERSPECTIVES ON AI AND DATA GOVERNANCE AND INFRASTRUCTURE**

Susan Gregurick, National Institutes of Health

Jorge Calzada, Centers for Disease Control and Prevention

Janet Haven, Data and Society; Member of the National AI Advisory Committee

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Suzanne Dorsey, Maryland Department of Environment

Moderator: **Gwen Ottinger**[†], Drexel University

10:45 Panel Discussion

11:15 **SESSION 5: TECHNOLOGIES AND TOOLS TO ADVANCE ENVIRONMENTAL HEALTH AND BIOMEDICAL RESEARCH**

Lorenzo Hankla, Department of Defense

Akane Sano, Rice University

Gengchen Mai, University of Georgia

Nicholas Skaff, Centers for Disease Control and Prevention

Moderator: **Alison Motsinger-Reif**, National Institute of Environmental Health Science

11:55 Panel Discussion

12:20 Closing Remarks—**Carmen Marsit**^{*†}, Emory University

12:40—1:20 Breakout Groups and Informal Networking

[JOIN](#)

1:30 Adjourn Workshop[#]

* Member of the Standing Committee on the Use of Emerging Science for Environmental Health Decisions.

† Member of the workshop Organizing Committee for Advances in Multimodal Artificial Intelligence to Enhance Environmental and Biomedical Data Integration

[#] The Standing Committee on the Use of Emerging Science for Environmental Health Decisions Business Meeting is from 2:50–4:00pm. This meeting is open to committee members and government liaisons.

Workshop Organizing Committee

This workshop was organized by the following experts: **Carmen Marsit (Workshop Chair)**, Emory University; **Yao-Yi Chiang**, University of Minnesota; **Christopher Duncan**, National Institute of Environmental Health Sciences; **Anindita Dutta**, University of Chicago; **Megan Latshaw**, John Hopkins University; **Gwen Ottinger**, Drexel University

About Us

The National Academies' Standing Committee on the Use of Emerging Science for Environmental Health Decisions (ESEHD) examines and discusses issues on the use of new science, tools, and research methodologies for environmental health decisions. The ESEHD committee is organized under the auspices of Board on Life Sciences and the Board on Environmental Studies and Toxicology of the National Academies of Sciences, Engineering, and Medicine, and sponsored by the National Institute of Environmental Health Sciences.