AI RESEARCH SUMMIT 2025

Presented by the Department of Biomedical Engineering, the Center for Biomedical Data Science, and the Knight Cancer Institute

NOVEMBER 21, 2025
Knight Cancer Research Building

OHSU

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A special thank you to the AI Research Summit Planning Committee:

Xubo Song, Ph.D.

Steven Bedrick, Ph.D

David Huang, Ph.D

Chi Zhang, Ph.D

Karina Nakayama, Ph.D

Kyle Ellrott, Ph.D

Zheng Xia, Ph.D

Daniel Zuckerman, Ph.D

Margaux Schwartz

Sara Kopton

Jackie Dingman

Shannon McWeeney, Ph.D

Owen McCarty, Ph.D

LETTER FROM CONFERENCE ORGANIZERS

Welcome to the inaugural OHSU AI Research Summit.
We are excited to bring together innovators, leaders, and
learners from across OHSU to discuss research applications,
resources, developments, and ideas within the space of AI.

The summit will feature a range of presentations on the
development and application of AI to solve problems and
address unmet clinical needs. Trainees will share their
innovative uses of AI in their research in our poster and
lightning talk sessions. The event will be capped off with a
panel discussion with thought leaders on the impact of AI in
biomedical research & innovation.

On behalf of the 2025 Organizing Committee,
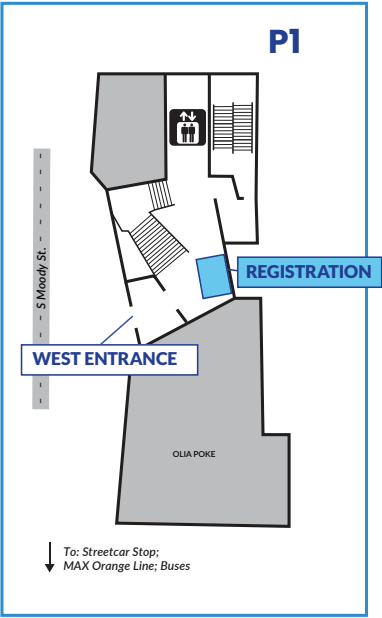
Owen McCarty, Ph.D., FAHA

Owen McCarty, Ph.D., FAHA

Gordon Moore Professor & Chair
Department of Biomedical Engineering
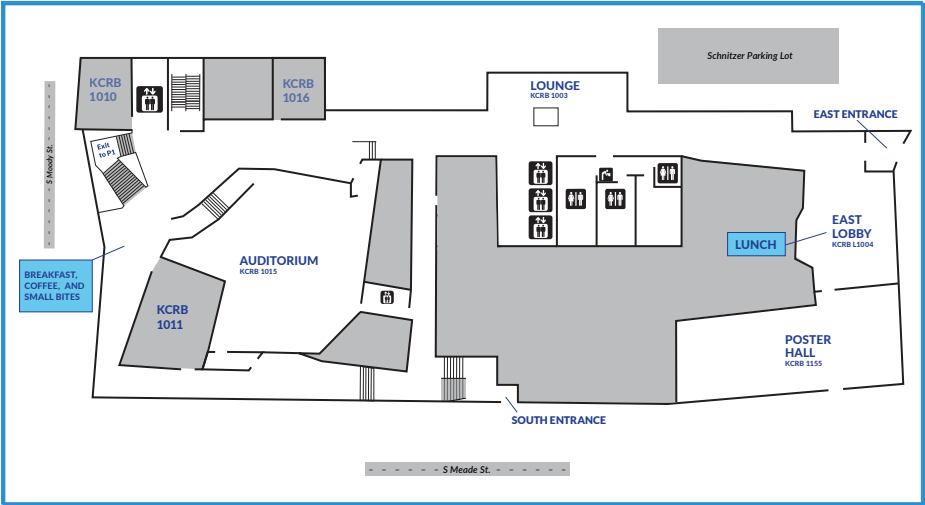**Oregon Health & Science University**

SCHEDULE

	08:00AM - 09:00AM REGISTRATION & REFRESHMENTS		

Welcome & Introduction

09:00 AM - 09:15 AM	- Owen McCarty, PhD and Xubo Song, PhD - Brian Druker, MD Knight Cancer Institute	01:00 PM - 01:30 PM	POSTER SESSION

Session I Moderator: Bonnie Nagel, PhD		Session IV Moderator: Zheng Xia, PhD	

Session I – AI for Real-Time & Longitudinal Clinical Decision Support

Session IV – Computational Methods for Imaging, Multimodal Data & Tissue Microenvironment

09:15 AM - 09:30 AM	Peter Jacobs, PhD Department of Biomedical Engineering	01:30 PM - 02:00 PM	Sutanay Choudhury, PhD and Jason McDermott, PhD Pacific Northwest National Laboratory (PNNL)
09:30 AM - 09:45 AM	David Sheridan, MD, MCR Emergency Medicine	02:00 PM - 02:15 PM	Young Hwan Chang, PhD Department of Biomedical Engineering
09:45 AM - 10:00 AM	Michael AuYeung, PhD Department of Neurology	02:15 PM - 02:30 PM	Xubo Song, PhD Center for Biomedical Data Science
10:00 AM - 10:15 AM	Ruchi Thanawala, MD, MS, FACS Division of Cardiothoracic Surgery; DICE; CAILHS	02:30 PM - 02:45 PM	Greg Baker, PhD, PharmD Division of Oncological Sciences

10:15 AM - 10:30 AM BREAK	02:45 PM - 03:00 PM BREAK

Session II and III Moderator: David Huang, MD PhD		Session V Moderator: Aditi Martin, PhD Session VI Moderator: Mary Heinricher, PhD	

Session II – AI in Clinical Imaging & Diagnostics

Session V – Risk Stratification, Causal Inference & Population Health

10:30 AM - 10:45 AM	Yali Jia, PhD Casey Eye Institute	03:00 PM - 03:15 PM	Maya O'Neil, PhD Department of Psychiatry
10:45 AM - 11:00 AM	Shannon McWeeney, PhD Division of Oncological Sciences; DICE; Knight Cancer Institute	03:15 PM - 03:30 PM	Jessica Minnier, PhD OHSU-PSU School of Public Health

Session III – Interpretable AI in Biomedicine

11:00 AM - 11:15 AM	Chi Zhang, PhD Department of Biomedical Engineering	03:30 PM - 03:45 PM	Mohammad Adibuzzaman, PhD Oregon Clinical and Translational Research Institute
11:15 AM - 11:30 AM	Hiroshi Ishikawa, MD Casey Eye Institute	03:45 PM - 04:00 PM	Steven Bedrick, PhD Division of Informatics, Clinical Epidemiology and Translational Data Science

Session VI – Panel Discussion

11:30 AM - 12:00 PM	LIGHTNING SPEAKERS Moderated by Nathan Selden, MD, PhD, FACS, FAAP; Dean, OHSU School of Medicine	04:15 PM - 05:15 PM	The Impact of AI in Biomedical Research & Innovation: A Conversation with Clinicians and Engineers Mike King (Rice), Orly Alter (Utah, Prism AI), David Dorr (OHSU), Guang Fan (OHSU), Hui Wu (OHSU SOD)

12:00 PM - 01:00 PM LUNCH	05:30 PM - 07:00 PM RECEPTION

MAP

P1

REGISTRATION

WEST ENTRANCE

S Moody St.

OLIA POKE

To: Streetcar Stop;
MAX Orange Line; Buses

Knight Cancer Research Building

P1 & First Floor

Schnitzer Parking Lot

KCRB 1010

KCRB 1016

LOUNGE
KCRB 1003

EAST ENTRANCE

Exit to P1

S Moody St.

BREAKFAST, COFFEE, AND SMALL BITES

AUDITORIUM
KCRB 1015

KCRB 1011

LUNCH

EAST LOBBY
KCRB L1004

POSTER HALL
KCRB 1155

SOUTH ENTRANCE

S Meade St.

GUEST SPEAKERS

Peter Jacobs, Ph.D.

James and Shirley Kuse Endowed Chair and Professor in Chemical Engineering, Department of Chemical, Biological and Environmental Engineering, Oregon State University

Professor, Department of Biomedical Engineering, Oregon Health & Science University

Leveraging AI and digital twins to design decision support and drug delivery systems in diabetes

David Sheridan, M.D., M.C.R.

Associate Professor of Emergency Medicine, School of Medicine, Oregon Health & Science University

Wearable Technology and BioSignals to Predict Adolescent Suicidality

Michael AuYeung, Ph.D.

Assistant Professor of Neurology, School of Medicine, Oregon Health & Science University

The Use of Artificial Intelligence in Aging and Alzheimer's Disease

GUEST SPEAKERS

Ruchi Thanawala, Ph.D.

Associate Professor, Thoracic Surgery, Division of Cardiothoracic Surgery; Director, Surgical Data and Decision Sciences Lab, Department of Surgery; Associate Program Director, Clinical Informatics Sub-specialty Fellowship, Oregon Health & Science University

Epistomics: The Science of How We Learn

Yali Jia, Ph.D.

Professor of Ophthalmology and Professor of Biomedical Engineering; Jennie P. Weeks Professor of Ophthalmology; Biomedical Engineering Graduate Program, School of Medicine, Oregon Health & Science University

AI in OCT Angiography

Shannon McWeeney , Ph.D.

Professor of Division of Oncological Sciences; Chief Data Officer, OHSU Knight Cancer Institute; Associate Director, Data Science, OHSU Knight Cancer Institute; Medical Bioinformatics,, OHSU Knight Cancer Institute; Biomedical Informatics Graduate Program, School of Medicine, Oregon Health & Science University

GUEST SPEAKERS

Chi Zhang, Ph.D.

Associate Professor of Biomedical Engineering and a member of the Center for Biomedical Data Science, Brenden-Colson Center for Pancreatic Care and Knight Cancer Institute at Oregon Health & Science University

Developing a Knowledge Graph to Study Metabolism in Cancer

Hiroshi Ishikawa, M.D.

Professor of Ophthalmology, School of Medicine; Research Director, Casey Reading Center; Casey Eye Institute, School of Medicine, Oregon Health & Science University

AI Applicaitons in Glaucoma Management

Sutanay Choudhury, Ph.D.

Sutanay Chief Scientist in Data Sciences in Advanced Computing, Mathematics and Data division at Pacific Northwest National Laboratory (PNNL); Deputy Director of Computational and Theoretical Chemistry Institute at PNNL

End-to-End Reasoning with Electronic Healthcare Records and Multi-Omics

GUEST SPEAKERS

Jason McDermott, Ph.D.

Senior Computational Biologist, Biological Sciences Division, Pacific Northwest National Laboratory (PNNL) and Adjunct Associate Professor, Department of Molecular Microbiology and Immunology, OHSU

Using AI to Explore Molecular Dark Matter

Young Hwan Chang, Ph.D.

Associate Professor of Computational Biology Program; Associate Professor of Biomedical Engineering; Biomedical Engineering Graduate Program; OHSU Center for Spatial Systems Biomedicine, OHSU Knight Cancer Institute, School of Medicine, Oregon Health & Science University

Minimal Panels, Maximum Insight: A Language of Staining

Xubo Song, Ph.D.

Scientific co-director of the Center for Biomedical Data Science; Professor at the Division of Oncological Sciences, the Department of Medical Informatics and Clinical Epidemiology and the Department of Biomedical Engineering; CEDAR, OHSU Knight Cancer Institute, School of Medicine, Oregon Health & Science University

AI for Biomedical Imaging – Foundation Models, Multimodality, From Data to Discovery
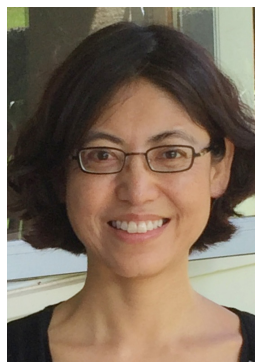
GUEST SPEAKERS

Gregory Baker, Ph.D. PharmD

Assistant Professor of Oncological Sciences, Division of Oncological Sciences; Department of Biomedical Engineering; Member, Center for Biomedical Data Science; Member, Cancer Early Detection Advanced Research; Knight Cancer Institute, School of Medicine, Oregon Health & Science University

Morphology-Aware Profiling of Highly Multiplexed Tissue Images using Variational Autoencoders

Maya O'Neil, Ph.D.

Professor of Psychiatry, Division of Clinical Psychology; Vice Chair for Research, Psychiatry; Associate Council Director, External Data Partnerships, Center for AI-enabled Learning Health Science; Oregon Health & Science University. Associate Director for Education, VA VISN20 NW Mental Illness Research, Education, and Clinical Center (MIRECC); Core Investigator, Health Systems Research Center to Improve Veteran Involvement in Care (CIVIC); VA Portland Health Care System.

Broad Applications of Machine Learning and AI in Health Systems and Behavioral Healthcare

Mohammad Adibuzzaman, Ph.D.

Assistant Professor and Director, Healthcare Ethical AI Lab (HEAL), Department of Medicine; Director, Informatics, Oregon Clinical and Translational Research Institute (OCTRI), Oregon Health & Science University

Ethical AI in Healthcare: Challenges and Opportunities

GUEST SPEAKERS

Jessica Minnier, Ph.D.

Associate Professor, OHSU-PSU School of Public Health, Knight Cancer Institute Biostatistics and Data Science Shared Resource, OHSU

Modern Approaches to Prediction Modeling: Integrating AI and Machine Learning

Steven Bedrick, Ph.D.

Associate Professor of Medical Informatics and Clinical Epidemiology, School of Medicine, Oregon Health & Science University

INTRODUCTORY SPEAKER

Introduction by Brian Druker, M.D.

CEO, Knight Cancer Institute; Professor of Medicine, Division of Hematology/Medical Oncology, School of Medicine; JELD-WEN Chair of Leukemia Research, Oregon Health & Science University

PANEL SPEAKERS

Michael R. King, Ph.D.

E.D. Butcher Professor of Bioengineering & CPRIT Scholar; Associate Vice President for Research; Special Advisor to the Provost on Life Science Collaborations with the Texas Medical Center, Rice University

Orly Alter, Ph.D.

USTAR Associate Professor of Bioengineering and Human Genetics, Scientific Computing and Imaging Institute and the Huntsman Cancer Institute, University of Utah, and Chief Scientific Officer and Co-Founder, Prism AI Therapeutics, Inc.

David Dorr, M.D., M.S.

Professor of Medical Informatics and Clinical Epidemiology; Professor of Medicine, Division of General Internal Medicine and Geriatrics; Vice Chair, Medical Informatics and Clinical Epidemiology; Chief Research Information Officer; Biomedical Informatics Graduate Program, School of Medicine, Oregon Health & Science University

PANEL SPEAKERS

Guang Fan, M.D., Ph.D.

Chair of the Department of Pathology and Laboratory Medicine; Professor of Pathology & Laboratory Medicine; Medical Director of OHSU Clinical Laboratories, Oregon Health & Science University

Hui Wu, Ph.D.

Professor of Integrative Biosciences, School of Dentistry; Associate Dean for Research, Dean's Office, School of Dentistry; Weight Professor in Dentistry Research, Oregon Health & Science University

Thank you to our Session moderators: Drs. Bonnie Nagel, David Huang, Zheng Xia, Aditi Martin, Mary Heinricher, and Nathan Selden.

LIGHTNING TALK SPEAKERS

11:30AM-12:00PM, Auditorium (KCRB 1015)

Moderated by Nathan Selden, MD, PhD, FACS, FAAP
Dean, OHSU School of Medicine

11:35 - 11:37 - CHRIS KLOCKE
11:39 - 11:41 - STEPHEN COLEMAN
11:43 - 11:45 - JIANWEI ZHANG
11:47 - 11:49 - DHARANI THIRUMALAISAMY
11:51 - 11:53 - CHRISTOPHER EDDY
11:55 - 11:57 - ALEXANDER HONKALA

Christopher Klocke, Computational Biologist, Wu Lab, Division of Oncological Sciences (DOS), OHSU
ChatEMT: A knowledge graphbased, LLMpowered AI agent for epithelialmesen-chymal transition

Stephan Coleman, Postdoctoral Scholar, Yardimci Lab, CEDAR, OHSU
manticore: Decoding the epigenome in multimodal fashion

Jianwei Zhang, Research Engineer, Song/Guimaraes/Sears Lab, Brenden-Colson Center for Pancreatic Care, OHSU
Ensuring Reliability in AIGenerated Medical Images: How Guidance Strength Affects Variability in Diffusion Models

Dharani Thirumalaisamy, Graduate Student, Nikolova Lab, Biomedical Engineering, OHSU
Presentation title: Bayesian transfer learning for robust muti-cohort modeling

Christopher Eddy, Postdoctoral Scholar, CEDAR, OHSU
TFHOUND: Predicting transcription factor binding at singleloci within singlecell accessibility assays

Alexander Honkala, Senior Research Assistant, Malhotra Lab, Biomedical Engineering, OHSU
PyTorch Encoders for Archetypal Convex Hulls (PEACH): Archetypal Analysis for Single Cell Data

POSTER SESSION

Posters for viewing during lunch, 12:00-1:00PM
Poster Session, 1:00-1:30PM, Poster Hall

1   **Abdalrahman Alblwi**
    Postdoctoral Scholar, CEDAR
    Multimodal MRI and
    Histopathology for Prostate
    Cancer Risk Prediction

2   **Canping Chen**
    Graduate Student, Biomedical
    Engineering
    A Scalable Framework for
    Connecting Spatial Cellular
    Patterns to Patient Outcomes with
    SCISSOR2

3   **Chris Klocke**
    Postdoctoral Scholar, Division of
    Oncological Sciences
    manticore: Decoding the
    epigenome in multimodal fashion

4   **Christopher Eddy**
    Postdoctoral Scholar, Cancer
    Early Detection Advanced
    Research
    TFHOUND: Predicting
    transcription factor binding
    at singleloci within singlecell
    accessibility assays

5   **Connor J. Smith, MS**
    Research Engineer, Department
    of Medicine - DICE
    Reducing Cardiovascular &
    Metabolic Morbidity Associated
    with Obstructive Sleep Apnea:
    Predictive Modeling and Deep
    Phenotyping

6   **Dharani Thirumalaisamy**
    Graduate Student, Biomedical
    Engineering
    Bayesian transfer learning for
    robust muti-cohort modeling

7   **Dimitry Tihomirov**
    Research Engineer, Knight
    Technology, Systems, and Data
    Science
    Deep Learning Based Homologous
    Recombination Deficiency
    Scoring Using Multiplex
    Immunofluorescence Images

8   **Jianwei Zhang**
    Research Engineer, Brenden-
    Colson Center for Pancreatic Care
    Ensuring Reliability in AI-
    Generated Medical Images:
    How Guidance Strength Affects
    Variability in Diffusion Models

9   **Jianwei Zhang**
    Research Engineer, Brenden-
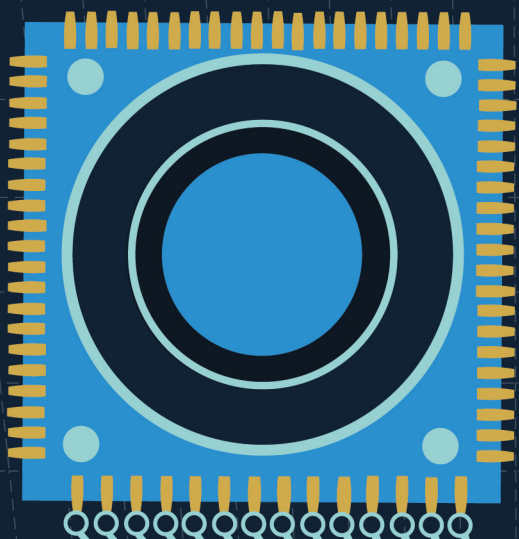   **Colson Center for Pancreatic Care**
    Zero-Shot Medical Image
    Translation via Structural Guidance

10 **Julianna Hays**
    Computational Biology Intern,
    Center for Biomedical Data
    Science
    Predicting 3D-Resolved
    Transcription Factor Binding from
    Chromatin Conformation Capture
    Assays

POSTER SESSION

11   Juyoung Lee
Computational Biologist, CEDAR
Predicting highly expressed genes from bulk and single-cell chromosome conformation capture assays

12   Katarina Pejcinovic
Graduate Student, DICE
SOFA Produces Uncertain Mortality Predictions: Reconsidering the Use of SOFA in Triage

13   Klara Schulc, MD
Postdoctoral Scholar, Knight Cancer Institute
An integrated deep learning multiomic model can extract learned sample-level connections

14   Mustafa Akur
Graduate Student, Biomedical Engineering
Functional Tissue Unit-based Whole-Slide Representation for Prostate Adenocarcinoma

15   Sarvenaz Sarkhosh
& BitERV Inc., BitAnimate, Inc.
BitERV: Pioneering the Future of Visual AI with BitAnimate's Novel Evolving AI Architecture

16   Stephen Coleman
Postdoctoral Scholar, CEDAR
manticore: Decoding the epigenome in multimodal fashion

17   Theresa Lusardi
Research Supervisor, CEDAR
Scaling Up: A flexible framework to guide early development of multi-marker classifiers

18   Tim O'Brien
Staff Scientist, Molecular and Medical Genetics, Knight Diagnostic Laboratories
Using AI in clinical exome analysis greatly enhances the workflow in an academic diagnostic laboratory

19   Yi Zhang
Graduate Student, Biomedical Engineering
AI-Powered Large-Scale Data Mining for Alternative Polyadenylation Analysis

20   Zhengchun Lu
Molecular Genetic Pathology Fellow, Department of Pathology and Laboratory Medicine
Validation of Artificial Intelligence (AI)-Assisted Flow Cytometry Analysis for Immunological Disorders

Thank you!