Heartland Workshop on Heart Sounds and AI

The Future of Heart Sounds for Diagnosing Heart Diseases in the Age of AI

Sponsored by the University of Nebraska Medical Center and the University of Nebraska-Lincoln College of Engineering, this workshop will provide an opportunity for researchers and practitioners in heart sounds and artificial intelligence (AI) to learn and collaborate on using new technologies and machine learning in their field of research or practice.

TARGET AUDIENCE
This workshop is designed for physicians in the specialty of cardiology, scientists, academic researchers, hardware and software engineers, and federal gov't funding agencies.

WORKSHOP OBJECTIVES
At the conclusion of this workshop, the participant should be better able to:
1. Describe the role of AI in health care.
2. Discover techniques and instruments utilizing AI to aid cardiology patients.
3. Discuss the advancements in the analysis of heart sounds for diagnosing heart disease.

DATES AND LOCATION
- **Thursday, June 20, 2024** – **Pre-Workshop AI Tutorial / Tour / Reception** (Optional)
  2:00 – 6:15 p.m.
  UNMC Michael F. Sorrell Center for Health Science Education – Room 1005
  619 S 42nd Street, Omaha, NE 68105

- **Friday, June 21, 2024** – **Heart Sounds and AI Workshop**
  7:30 a.m. – 5:00 p.m.
  UNMC Fred & Pamela Buffett Cancer Center – Room 0.12.103
  505 S 45th Street, Omaha, NE 68105

REGISTRATION FEES
- General Registration – $100
- University of Nebraska Students/Employees – $20

The deadline to register for this workshop is Friday, June 14, 2024.

ACCREDITATION

In support of improving patient care, University of Nebraska Medical Center is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

The University of Nebraska Medical Center designates this live activity for a maximum of 5.5 *AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

QUESTIONS
Contact Missy Edwards at 402-559-5145 or send an email to missy.edwards@unmc.edu.

REGISTER NOW!
www.engineering.unl.edu/heartsounds-ai-workshop

Heartland Workshop on Heart Sounds and AI

Thursday, June 20

2:00 p.m.	Registration
2:30 p.m.	Tour of Davis Global Center
3:15 p.m.	AI Tutorial
	The tutorial will provide introductory information on AI and its applications in Health Sciences
	M.R. Hasan, PhD
5:15 p.m.	Reception / Networking
6:15 p.m.	Adjourn

Friday, June 21

7:30 a.m.	Breakfast / Registration
8:00 a.m.	Opening Remarks
	Edward O'Leary, MD, MBA, MHCM; Hani Haider, PhD; Kenneth W. Bayles, PhD

Session I: Computer-Aided Cardiology
Moderator: Hamid Vakilzadian, PhD

8:15 a.m.	Computer-Aided Cardiology
	Ward A. Chambers, MD
8:50 a.m.	Heart Disease and AI
	Ayesha Azmeen, MBBS and Shine Bedi
9:25 a.m.	Break / Networking

Session II: Heart Sounds and AI
Moderator: Edward O'Leary, MD, MBA, MHCM

9:40 a.m.	History of Heart Sounds and the Search for Patterns for Disease Diagnosis
	Daniel H. Mathers, MD
10:15 a.m.	Machine Learning Models/Analysis for Heart Disease Detection
	Hamid Vakilzadian, PhD
10:50 a.m.	Challenges of Integration of Automated Heart Sound Analysis Into a Health Care System Like Nebraska
	John R. Windle, MD
11:25 a.m.	National Science Foundation (NSF) Policy in AI and Its Applications in Cardiology/Health Sciences
	Wendy J. Nilsen, PhD
12:00 p.m.	Lunch / Networking

Session III: Future Research Opportunities and Areas of Unmet Need
Moderator: Hani Haider, PhD

12:45 p.m.	NHLBI Training and Career Development Opportunities for Early Career Investigators*
	Siddharth Shenoy, PhD
1:20 p.m.	Funding Opportunities in Health Sciences and AI*
	Edwin Lomotan, MD
1:55 p.m.	Funding Opportunities in Cardiology and AI*
	Sylvia Spengler, PhD
2:30 p.m.	Plenary Discussion*
3:30 p.m.	Break / Networking

Session IV: State-of-the-Art AI Products
Moderator: Edward O'Leary, MD, MBA, MHCM

3:45 p.m.	State of AI in Commercial Products*
	Subbu Venkatraman, PhD
4:45 p.m.	Closing Remarks
5:00 p.m.	Adjourn

*No credit will be provided for this session.

WORKSHOP DIRECTORS

Edward O'Leary, MD, MBA, MHCM
Associate Professor, Division of Cardiovascular Medicine; Associate Medical Director, Cardiovascular Catheterization Laboratory; Associate Program Director, Interventional Cardiology Fellows, UNMC

Hamid Vakilzadian, PhD
Professor, Department of Electrical & Computer Engineering, College of Engineering, UNL

Hani Haider, PhD
Professor; Director, Orthopaedic Biomechanics and Advanced Surgical Technologies Laboratory, Department of Orthopaedic Surgery and Rehabilitation, UNMC

WORKSHOP FACULTY

Ayesha Azmeen, MBBS
Third Year Fellow, Division of Cardiovascular Medicine, Department of Internal Medicine, UNMC

Kenneth W. Bayles, PhD
Professor, Department of Pathology, Microbiology, and Immunology; Vice Chancellor for Research, UNMC

Shine Bedi
Graduate Student, Computer Science, College of Engineering, UNL

Ward A. Chambers, MD
Professor, Division of Cardiovascular Medicine, Department of Internal Medicine, UNMC

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Deputy Director, Division of Digital Healthcare Research, Agency for Healthcare Research and Quality (AHRQ), Rockville, MD

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Siddharth Shenoy, PhD
Biomedical Engineer, Program Director, Digital Health & Informatics Technologies Program; Acute and Infectious Lung Disease Branch, Division of Lung Diseases, National Heart Lung Blood Institute, National Institutes of Health, Bethesda, MD

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Chief Technology Officer, Eko Health, Inc. San Francisco, CA

John R. Windle, MD
Holland Distinguished Chair in Cardiovascular Sciences; Professor, Division of Cardiovascular Medicine, Department of Internal Medicine, UNMC