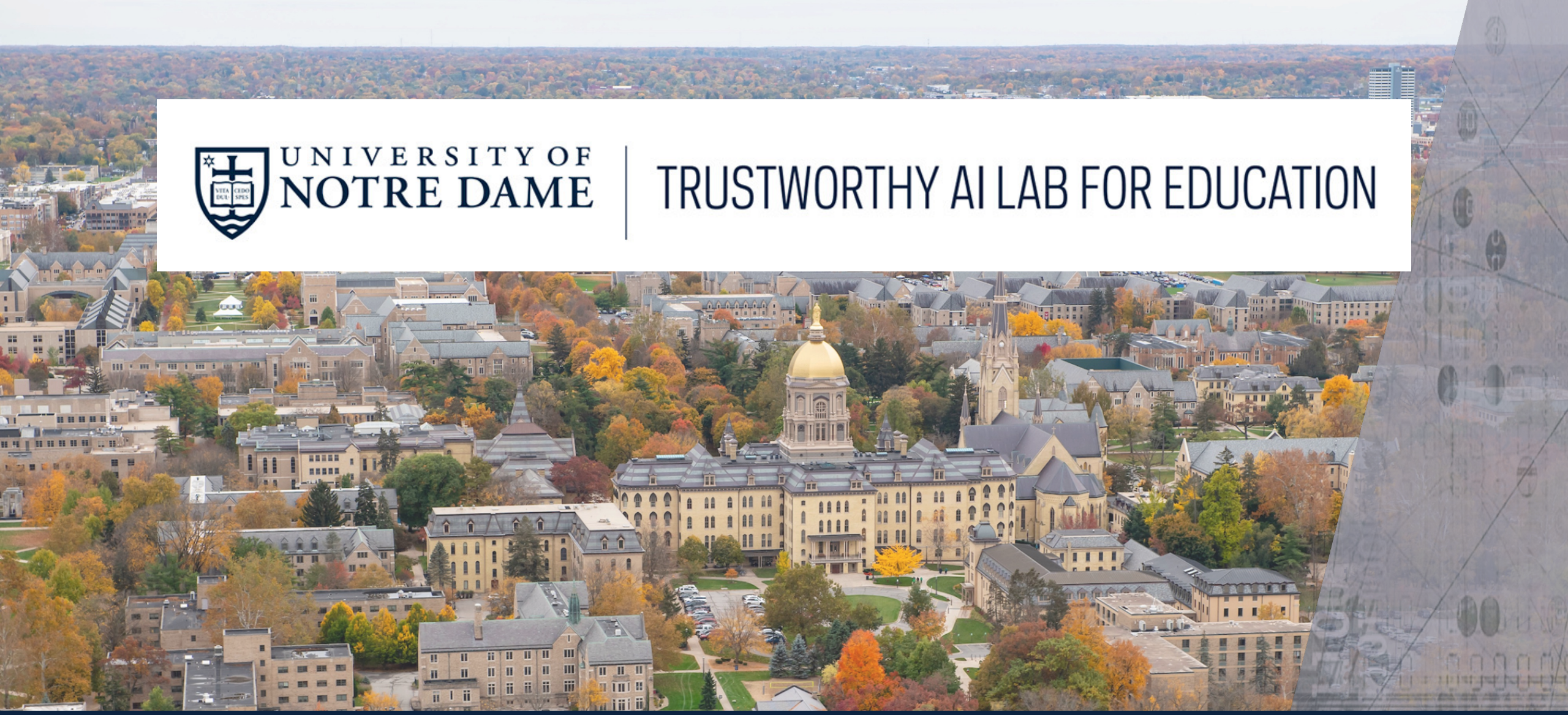


UNIVERSITY OF NOTRE DAME

TRUSTWORTHY AI LAB FOR EDUCATION

December 1, 2023

UNIVERSITY OF NOTRE DAME
Notre Dame Research
Institute for Scholarship in the Liberal Arts
Lucy Family Institute for Data & Society

AGENDA

MCKENNA HALL, 215-216

8:00-9:00AM

Breakfast & Registration

9:00-9:15AM

Welcome & Introduction

Dr. Ed Maginn, *Associate VP for Research, University of Notre Dame*

Dr. Nitesh Chawla, *Founding Director, Lucy Family Institute for Data & Society, and Frank M. Freimann Professor of Computer Science and Engineering*

MCKENNA HALL, 215-216

9:15-10:30AM

Panel

AI in the Future of Education I: Industry Perspectives

Moderator:
Dr. Daniel Lapsley

Featured Panelists:
Dr. Alina von Davier (virtual), Dr. Kristen DiCerbo, Dr. Michelle D. Barrett

10:30-10:45AM

Break

10:45-12:00PM

Panel

AI in the Future of Education II: Academic Perspectives

Moderator:
Dr. Ranjodh Singh Dhaliwal

Featured Panelists:
Dr. Ryan Baker (virtual), Dr. Hua-Hua Chang, Dr. Josep Domingo-Ferrer

SMITH BALLROOM A/B: MORRIS INN

12:00-1:30PM

Lunch & Poster Session*

*Poster information is available on page 9 of this program.

MCKENNA HALL

1:30-2:30PM

Parallel Research Presentations

MH 202

AI-Driven Educational Innovations

Chair: Nancy Le

Balancing Act: Early Predictions for High School AP Statistics Performance
Bo Pei

Advanced Knowledge Tracing for Intelligent Tutoring Systems
Yikai Lu

How AI assisted K-12 Computer Science Education? A System Review
Zifeng Liu

*Automatic Screening & Diagnosis of Students' Use of Number Lines
Dake Zhang

*C.A.R.E. @ Purdue
Wonjin Yu

*: 5-min lightning talk

MH 205

AI in Educational Assessment & Analysis

Chair: Toby Li

Harnessing Hierarchical Zero-Shot Classifier for Efficient Item Categorization
Ting Wang

Developing an Automated System for Answering Questions w/ Multiple Options
Chandramani

Uncovering Key Drivers to Boost Students' Math Performance Globally Using Machine Learning: A PISA 2018 Study
Liu Liu, Rui Dai

* How Well Do AI-Generated Recommendations Predict Learners' Ratings of Educational Content?
Teresa Ober

MH 206/207

Ethical & Trustworthy AI in Education

Chair: Yuanfang Liu

Towards Transparent & Trustworthy Prediction of Student Learning Achievement
Xiaojing Duan

Privacy-Enhancing Technologies for Educationally Focused AI
Jonathan Takeshita

Distributed Ledgers For Trustworthy and Accountable AI
Aditya Joshi

* Analyzing Bias & Privacy Impact in Multimodal Generative AI
Hai Li

* A Machine Learning Approach to Assess Differential Item Functioning in Educational Testing
Qizhou Duan

MCKENNA HALL, 215-216

2:30-2:45PM

Break

2:45-3:55PM

Panel

Challenges and Concerns of AI in Education

Moderator:
Dr. John Behrens

Featured Panelists:
Dr. Kenneth Koedinger (virtual) , Dr. Wayne Holmes, Dr. Yiran Chen

3:55-4:05PM

Break

Parallel Research Presentations

4:05-5:05PM

MH 202

Large Language Models in Education

Chair: Cheng Liu

Successes and limitations in teaching mathematical vocabulary using large language models
Katherine Ziska

Recent research on using ChatGPT for professional licensure item development
Kirk Becker

Exploring the use of ChatGPT in academia through Twitter discourse
Yingying Jiang

* AI4Sci-Tutor: A Personalized Learning Platform for Scientists
Zhenwen Liang

* Integrating Generative AI in Augmented Reality: A New Paradigm for Educational Resource Creation
Zifeng Liu

MH 205

Conversational AI & Interactive Systems

Chair: Xiangliang Zhang

Leveraging AI to Support Participation & Sense-making in Synchronous Group Discussion
Xinyue Chen

VISAR: A Human-AI Argumentative Writing Assistant w/ Visual Programming and Rapid Draft Prototyping
Zheng Zhang

ReadingQuizMaker: A Human-NLP Collaborative System that Supports Instructors
Xinyi Lu

* RICE AlgebraBot: Lessons Learned from Designing and Developing Responsible Conversational AI
Chenglu Li

* EviRateGPT: A Dynamic Framework for Evaluating Student Evidence-based Reasoning Ability
Bo Pei

MH 206/207

Perspectives & Futures of AI in Education

Chair: Teresa Ober

Artificial Intelligence (AI) & Education – Voices from K-12 Educators in South Korea and the United States
Wanju Huang

Charting AI's Future in Education: A Framework for the University Notre Dame
Ellen Joyce

New Frontiers in AI Evaluation: Bridging IRT and Machine Learning
John Lalor

* Exploring and addressing perceptions of AI through public library partnerships
Anne Holland

* Student Creativity in the Age of AI Co-Authorship: A Cognitive Process of Writing
Ruyuan Wan

*: 5-min lightning talk

MCKENNA HALL, 215-216

5:15-5:20PM

Awards

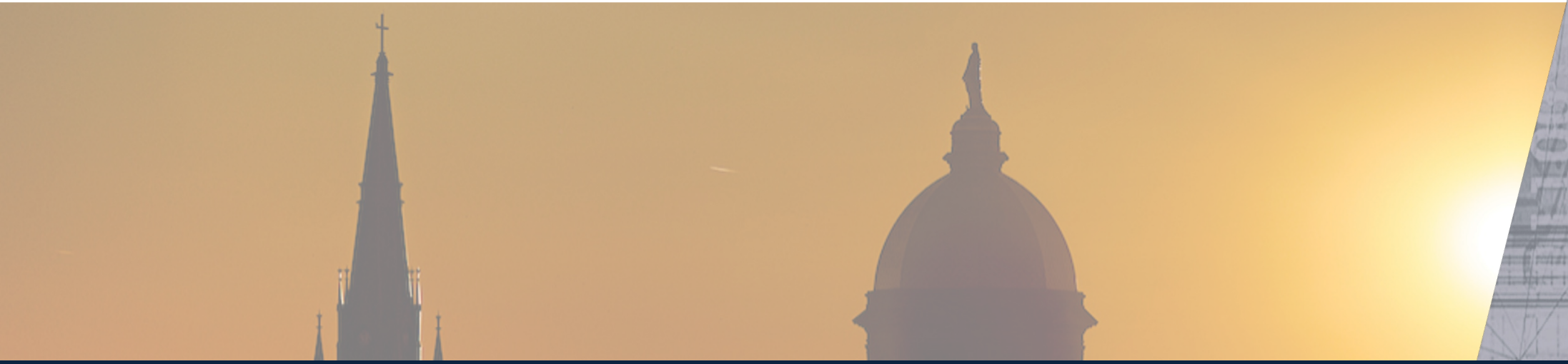
5:20-5:30PM

Closing Remarks

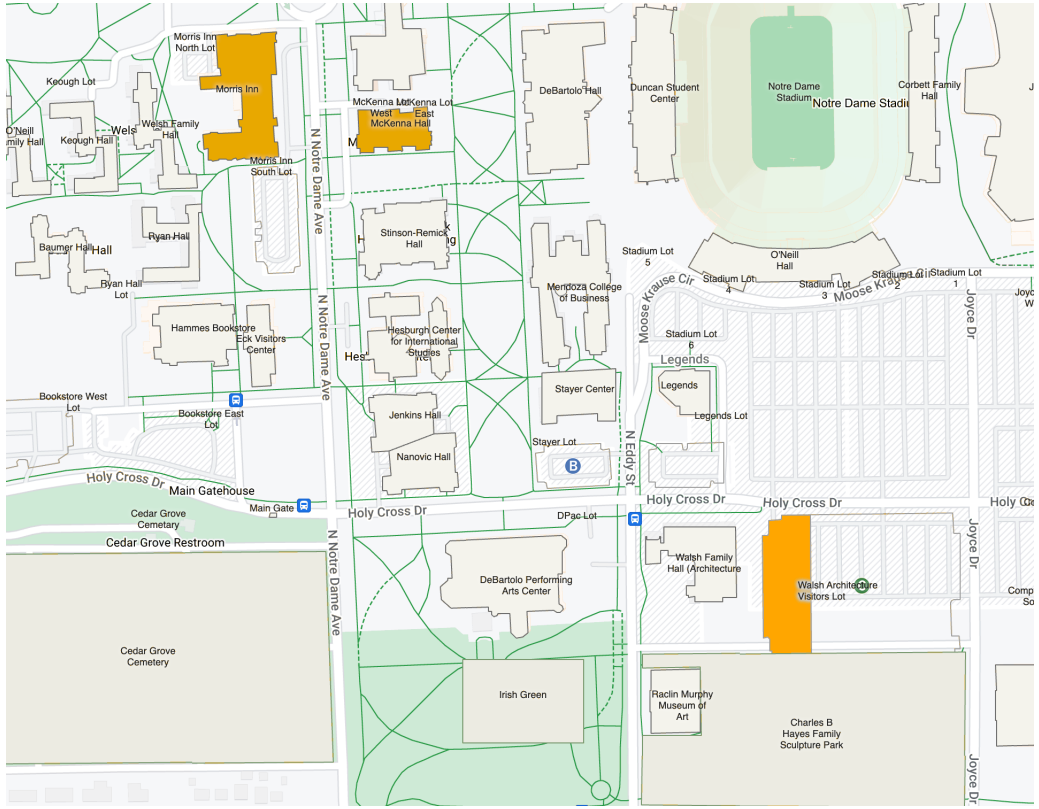
Dr. Sarah Mustillo, *Dean of the College of Arts and Letters at the University of Notre Dame*

5:30-6:45PM

Reception



CAMPUS MAP



Key locations on campus:

- McKenna Hall (event venue)
- Morris Inn (lunch & poster session)
- Visitor parking

*Interactive and downloadable versions of the University of Notre Dame campus are available online at: maps.nd.edu

POSTERS

AI in Computer Science Education: A Systematic Review of Empirical Research in 2003-2023
Ke Zhang, Wayne State University

Future Advising with AI: Examining ChatGPT's Role in Transforming Academic Advising
Julia Qian, University of Notre Dame

Leave them kids (data) alone: privacy concerns in assessment data
Nuno Moniz, University of Notre Dame

Towards Controllable Multiple-Choice Quiz Question Generation for STEM Subjects via Large Language Models
Mengxia Yu, University of Notre Dame

Trustworthy AI requires algorithmic interpretability: Some takeaways from recent uses of eXplainable AI (XAI) in education
Juan D. Pinto, University of Illinois Urbana-Champaign

A Comparison of the Efficiency of Two Image Processing Models on Identifying Students' Written Solutions to Fraction Problems
Qihan Lu, Rutgers University

Are Universities Ready for Generative Artificial Intelligence (GAI)? Topic Modeling and Sentiment Analysis of 100 Universities Policy Documents
Brian Waltman, The University of the Incarnate Word

Modeling Student's Learning Effectiveness through Large Language Model Simulations
Bang Nguyen, University of Notre Dame

Computationally Mediated Analysis of Unstructured Classroom Audio and Video: A Case for Augmenting Classroom Insights
Paul Hur, University of Illinois Urbana-Champaign

Enhancing Online Education: An AI Framework for Non-Verbal Communication Analysis and Collaborative Learning Enhancement
Mohammed Almutairi, University of Notre Dame

Learning Analytics in Organic Chemistry
Thomas Joyce, University of Notre Dame

iSEA: Instructor-in-the-loop Student Engagement Analytics via FAccT AI
Wangda Zhu, University of Florida

Assessing ChatGPT's Proficiency in Generating Accurate Questions and Answers for Algebra 1
Meredith Sanders, University of Notre Dame

How Contexts Matter: Course-Level Correlates of Performance and Fairness Shift in Predictive Model Transfer
Joseph Olson, Teachers College Columbia University

The Virtues of Trustworthy AI
Caroline Quinn, University of Notre Dame

Making A.I. Dance
Kathryn Regala, University of Notre Dame