

Midwest Instruction and Computing Symposium (MICS 2024)

Minneapolis, Minnesota, USA
5 - 6 April 2024

ISBN: 978-1-7138-9522-0

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2024) by Midwest Instruction & Computing Symposium
All rights reserved.

Printed with permission by Curran Associates, Inc. (2024)

For permission requests, please contact Midwest Instruction & Computing Symposium
at the address below.

Midwest Instruction & Computing Symposium
University of Wisconsin
204E North Hall
410 S 3rd St.
River Falls, WI 54022

Phone: (715) 425-0660
Fax: (715) 425-0657

east@cs.uni.edu

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

Technical Session 1: 1:30 – 2:30 pm - Friday April 5, 2024

| AI Classification: Hagfors 351 | | Session Chair: Muhammad Abusaqer |
|---------------------------------------|--|---|
| 1:30 | Text Detection between an AI Written Passage vs. a Human Written Passage...1 | Saif Khan, Kaif Khan, and Muhammad Abusaqer |
| 2:00 | Firefly Spark Classification Optimization...13 | Jacob Olinger and Simone Ludwig |

| Data Science Prediction: Hagfors 352 | | Session Chair: Ben Paulson |
|---|---|---|
| 1:30 | NourishNet: Proactive Severity State Forecasting of Food Commodity Prices for Global Warning Systems...21 | Ben Paulson, Sydney Balboni, Ella Bruce, John Cisler, Caitlyn Grant, Grace Ivey, Tyge Plater and Brett Storoe |
| 2:00 | Predicting Campus Crime Based on State Firearm Policy...36 | Travis Smith and Muhammad Abusaqer |

| Audio: Hagfors 367 | | Session Chair: Hugo Garrido-Lestache |
|---------------------------|---|---|
| 1:30 | | |
| 2:00 | Synthesizing Audio from Silent Video using Sequence to Sequence Modeling...49 | Hugo Garrido-Lestache Belinchon, Helina Mulugeta and Adam Haile |

| Games: Hagfors 373 | | Session Chair: Sieger Canney |
|---------------------------|---|--|
| 1:30 | Using The Video Gaming Industry As A Lens To Understand The Potential Benefits And Effects of Machine Learning...58 | Sieger Canney |
| 2:00 | The Hearts of AI...66 | Mitchell Johnstone, Sam Keyser, Zachary Wentz, Franklin Cole and Charles Nortrup |

Technical Session 2: 3:00 – 4:00 pm - Friday April 5

| Music Education: Hagfors 351 | | Session Chair: Preston Scott |
|-------------------------------------|--|-------------------------------------|
| 3:00 | Melodic Equality: Advancing Music Education through Automated Lesson Generation...75 | Preston Scott and Benjamin Fine |

| Faculty Grading: Hagfors 352 | | Session Chair: Amy Larson |
|-------------------------------------|---|----------------------------------|
| 3:00 | Beyond Traditional Grading: Harnessing Oral Interviews and Code Reviews for Student Success in Computer Science...86 | Benjamin Fine |
| 3:30 | Improving Student Success in Introduction to Programming through Reimagined Assignments, Equitable Grading, and Peer Instructors...95 | Amy Larson |

| Image Processing: Hagfors 367 | | Session Chair: Jacob Jensen |
|--------------------------------------|--|------------------------------------|
| 3:00 | | |
| 3:30 | Global Echoes of the FIFA World Cup 2022: Sentiment and Theme Analysis via Deep Learning and Machine Learning on Twitter...106 | Jacob Jensen and Muhammad Abusaqer |

| Medical Imaging: Hagfors 373 | | Session Chair: Christian Basso |
|-------------------------------------|--|--|
| 3:00 | Adapting Diffusion-Based Image-to-Image Translation Models for Immunohistochemical Image Generation in Breast Cancer Diagnosis...N/A | Christian Basso, Caleb Andreano and Ben Gadiano |
| 3:30 | Mind over (Gray) Matter: Homologous Point Transform Application to Brain Histology and MR Domains...118 | Caleb Gray, Alexander Neher, Sonia Grade, John Bukowy, Peter LaViolette, Bart Gebka, Abigail Draper and Mikolaj Sordyl |

Technical Session 3: 9:00 – 10:00 am - Saturday April 1

| CS Education: Hagfors 351 | | Session Chair: Nolan Dowling |
|----------------------------------|--|---|
| 9:00 | FactoryCode: A Feasibility Study on a Novel Dynamic Code Visualization Tool for Introductory Programming Courses...127 | Nolan Dowling, Ethan Kilmer and Danny Schmidt |
| 9:30 | Exploring Mojo: A Comparative Analysis of its Suitability as a Replacement for C++ in Computer Science Education...135 | Evan Wiebe and Ryan Harvey |

| Math -Agent / Swarm : Hagfors 352 | | Session Chair: Asher Sprigler |
|--|---|---|
| 9:00 | Synergistic Simulations: Multi-Agent Problem Solving with Large Language Models...145 | Asher Sprigler, Alexander Drobek, Keagan Weinstock, Wendpanga Tapsoba, Gavin Childress, Andy Dao, Lucas Gral |
| 9:30 | Towards Flexible and Scalable Control Systems for Swarm Robotics: A Literature Review and Proposed Design...160 | Miles Bourassa, Jack Ford, Mitchell Johnstone, Sam Keyser, Matt Korfhage, William Lassiter, Philip Lewander, Christian Orozco, Matt Senn, Asher Sprigler and Brett Storoe |

| Cyber: Hagfors 367 | | Session Chair: Anushka Hewarathna |
|---------------------------|--|---|
| 9:00 | “That privacy policy said what ?” Exploring Issues with Privacy Policy Comprehension and Privacy Fatigue...174 | Anushka Hewarathna, Craig Overboe, Yixiang Zhang and Jiajun Liu |
| 9:30 | Securing the Future of Federated Learning in Artificial Intelligence: A Comprehensive Review of Security Challenges, Solutions, and Future Direction...181 | Riya Patel, Olalekan Raji, Mamadou Barry and Akalanka Mailewa |

| LLM : Hagfors 373 | | Session Chair: Ye Yint Win |
|--------------------------|---|--|
| 9:00 | Researching and Testing ChatGPT and its Competitors, Separating the Hype from the Facts...198 | Ye Yint Win, Nathan Kraft and Ahmed Kamel |
| 9:30 | Using AI to Detect Lies: Determining the Truthfulness of Math LLMs...207 | Alex Ewart, Mikhail Filippov, Jack Dorner, Josiah Yoder, Xander Neuwirth and Daniel Portwine |

| CS Education: Hagfors 152 | | Session Chair: Mark Fienup |
|----------------------------------|---|---|
| 9:00 | Impact of Generative Artificial Intelligence Tools on the Instruction of the Data Structures Course...216 | Mark Fienup |
| 9:30 | GeniusDeck: An LLM-driven Web Application Revolutionizing Student Learning...232 | Brendan Chermack, John Klein, Matthew Molenaar, Ashesh Nepal, Terrance Wallace and Jalal Khalil |

Technical Session 4: 10:30 – 11:30 - Saturday April 6

| American Sign Language : Hagfors 351 | | Session Chair: Nolan Dowling |
|---|--|---|
| 10:30 | Enhancing American Sign Language Learning through Landmark-Based Recognition and Sequence Modeling...239 | Leigh Goetsch, Aiden Miller, Liam Otten, Tyler Schreiber and Michael Conner |
| 11:00 | Harnessing FPGA Acceleration for Real-Time Sentiment Analysis in Music Waveforms...247 | Asher Sprigler and Jacob O'Shaughnessy |

| DB & Compilers : Hagfors 352 | | Session Chair: John Walbran |
|---|--|--|
| 10:30 | Large Language Models Based Compiler Optimization: Summary of Recent Work and a Proposed Framework...248 | John Walbran and Wenkai Guan |
| 11:00 | An Analysis of a MySQL Inventory Database and Potential Memory Vulnerabilities...N/A | Tan Nguyen, Erich Rice and Dennis Guster |

| Code Viz : Hagfors 367 | | Session Chair: Collin Hemze |
|-------------------------------|--|---|
| 10:30 | MATQVis: A Web-Based Query and Visualization Tool for MATSim...253 | Collin Hemze, Khaled Shaheen, Faisal Shaheen and Jalal Khalil |
| 11:00 | Concurrency Visualization: Three Ways...260 | Shuta Kumada and Samantha S. Foley |

| Cyber : Hagfors 373 | | Session Chair: Adow Ali |
|----------------------------|--|--|
| 10:30 | The Human Factor in Cybersecurity: Understanding Psychology, Training Efficacy, and Error Reduction Strategies...273 | Adow Ali, Craig Overboe, Thivanka Mohottalalage and Akalanka Mailewa |
| 11:00 | Decoding the Cyber Battlefield: A Review of Threats, Tactics, and Defensive Strategies in Cyber Warfare...287 | Deb Saha, Thivanka Mohottalalage and Akalanka Mailewa |

| Med & AI: Hagfors 152 | | Session Chair: Mitchell Mahnke |
|----------------------------------|--|--|
| 10:30 | Reading Between the Lungs: Evaluation of Deep Learning Model Architectures for COVID-19 Classification on Segmented Chest X-rays...301 | Mitchell Mahnke, Evan Schubert, Will Sebelik-Lassiter and Theodore Colwell |
| 11:00 | The AI Applications in Radiology: Regulation, Evaluation, and Usage...311 | Jacob Olinger and Olga Scrivner |