CADSCOM 2021

The Third Colloquium on Analytics, Data Science, and Computing

March 20, 2021

Organized Virtually by the Twin Cities ACM Chapter

CONFERENCE PROGRAM

acm > Chapter Conference

TWIN CITIES acm Professional Chapter

CADSCOM 2021

The Twin Cities ACM Chapter invites students, faculty, and professionals to CADSCOM 2021! The 3rd Colloquium on Analytics, Data Science, and Computing (CADSCOM) will be held virtually on Saturday, March 20, 2021.

CADSCOM provides an excellent opportunity for faculty, students, and professionals to share their original research in data science, analytics, and computing. The submissions are peer-reviewed and double-blind reviewed. The colloquium will feature prominent keynote, industry-faculty panels, and peer-reviewed papers. CADSCOM 2021 has been approved by the Association for Computing Machinery (ACM) as a chapter conference.

We are proud to partner with the Minnesota State IT Center of Excellence, Metropolitan State University, and Minnesota State University, Mankato to host CADSCOM 2021.

CADSCOM TEAM

Organizing Committee:

- *Rajeev Bukralia, Minnesota State University, Mankato (Chair)*
- *Ismail Bile Hassan, Metropolitan State University*
- *Simon Jin, Metropolitan State University*
- *Dalia Sulieman, Metropolitan State University*
- *Janice Aanenson, Minnesota State IT Center of Excellence*

Program Committee:

- *Simon Jin, Metropolitan State University (Program Chair)*
- *Hamdan Alabsi, Bemidji State University*
- *Hassan Osman Ali, High Colleges of Technology (HCT)*
- *Chulhwan (Chris) Bang, Auburn University at Montgomery*
- *Queen Booker, Metropolitan State University*
- *Rajeev Bukralia, Minnesota State University, Mankato*
- *Thanaa Ghanem, Metropolitan State University*
- *Michael Hart, Minnesota State University, Mankato*
- *Ismail Bile Hassan, Metropolitan State University*
- *David Jacobson, Metropolitan State University*
- *Sang Phil Kim, Winona State University*
- *Sarah Kruse, Minnesota State University, Mankato*
- *Jae Ung (Jake) Lee, Louisiana Tech University*
- *Mary Lebens, Metropolitan State University*
- *Muhidin A. Mohamed, Aston University*
- *Junghoon Song, Texas Wesleyan University*
- *Dalia Sulieman, Metropolitan State University*
- *Halbana Tarmizi, Bemidji State University,*
- *Wei Wei, Metropolitan State University*
- *Donghyup (DH) Woo, University of Pittsburgh at Greensburg*

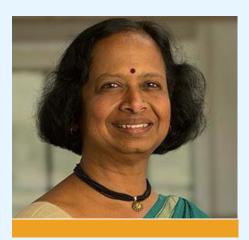LEARN CONNECT INNOVATE

MARCH 20

8:30 AM – 8:55 AM   **Welcome Session** *~Webinar Room*

- Chapter Introduction (Rajeev Bukralia, Chair, Twin Cites ACM Chapter)
- Welcome Remarks (Aaron Budge, Dean, Minnesota State University, Mankato)
- Welcome Remarks (Kyle Swanson, Dean, Metropolitan State University)

9:00 AM – 9:40 AM   **Keynote** *~Webinar Room*

- **Machine Learning, Artificial Intelligence and Optimization: Opportunities for Inter-Disciplinary Innovation** (Radhika Kulkarni)

9:45 AM – 10:25 AM   **Panel Discussion I** *~Webinar Room*

- **Data Science & AI: Current Challenges and Future Frontiers** (Dan Atkins, James Harroun, Mac Noland, Tonio Lora, Rajeev Bukralia)

10:30 AM – 11:10 AM   **Panel Discussion II** *~Webinar Room*

- **Inclusion and Equity in Computing and Data Science** (Kate Bischoff, Bonnie Holub, Alycia Holwerda, Anahita Bahrami, Diana DeSoysa, Queen Booker)

11:15 AM – 12:00 PM   **Panel Discussion III** *~Webinar Room*

- **Enhancing Opportunities in Research, Grants, and Publications** (Rassule Hadidi, Amit Deokar, Mohamed Mokbel, Sarah Kruse)

12:00 PM – 12:30 PM   **Lunch Break**

12:30 PM – 3:25 PM   **Research Paper Presentations**

- Paper 1-6 *~Meeting Room #1*
- Papers 7-12 *~Meeting Room #2*
- Papers 13-19 *~Meeting Room #3*

' :30 PM – 4:10 PM   **Invited Talk** *~Webinar Room*

- **Remote Teaching and Learning Post COVID-19** (Mohammed Ali)

4:15 PM – 4:30 PM   **Closing Session** *~Webinar Room*

4:30 PM – 5:30 PM   **Networking** *~Meeting Room #4*

*Schedule subject to change.
**Login information and URLs for the webinar room and meeting rooms will be emailed to registered participants.
***All times are Central Time.

MARCH 20, 9 AM

RADHIKA KULKARNI

Former VP of R&D, SAS Institute, Inc. and President-Elect of INFORMS

Machine Learning, Artificial Intelligence and Optimization: Opportunities for Inter-Disciplinary Innovation

Machine learning tools and AI platforms have become prolific in many industries. Applications range from health care to financial applications to manufacturing industries. In the world of big data and ML / AI tools, there are numerous opportunities for application of optimization techniques. Large scale implementation of machine learning tools in artificial intelligence platforms require automation at several levels – increasing productivity along the entire analytics lifecycle as well as automated model selection to improve predictive models. In many of these problems, optimization techniques play an important role in finding solutions as well as improving performance. Often, the mathematical model and solution are only a small part of the overall problem. It is also important to ensure the availability of the data required for the model, whether the final result is easy to interpret and sustainable in the real world and myriad other aspects. In this talk, Kulkarni will discuss some of the practical concerns that are of equal importance: ease of implementation, acceptance of the results, safeguards needed to allow for over-rides of automatic decisioning, etc.

This presentation will provide several examples that describe some of these innovations in various industries as well as discuss trends and upcoming challenges for future research.

Dr. Radhika Kulkarni is an Advanced Analytics professional, active in Operations Research, Artificial Intelligence and Machine Learning. She recently retired after 35 years of leading various areas of analytics R&D at SAS Institute, Inc. For the last 10 years of her career, Kulkarni was the Vice President of Advanced Analytics R&D at SAS, overseeing software development in many analytical areas including Statistics, Operations Research, Econometrics, Forecasting and Data Mining. Dr. Kulkarni has been an active member in the Institute for Operations Research and the Management Sciences (INFORMS) throughout her career and is a recipient of the Women in Operations Research and the Management Sciences (WORMS) Award. She was recognized as an INFORMS Fellow in 2014 and currently serves as the President-Elect of INFORMS.

PANEL DISCUSSIONS

9:45 AM

PANEL DISCUSSION I:

Data Science & AI: Current Challenges and Future Frontiers

Panelists:

- Dan Atkins, President and Co-founder, MinneAnalytics
- Mac Noland, Chief Data Officer, phData
- Tonio Lora, Principal Cloud Data Architect, Microsoft
- James Harroun, Data Science Initiative Manager, SAS Institute, Inc.
- Rajeev Bukralia, Minnesota State University, Mankato *(Moderator)*

Organizations strive to harness data to solve complex problems, discover insights, and create competitive advantage. Data Science and Artificial Intelligence (AI), emerging and interdisciplinary fields, have shown great potential for advancing innovation in organizations; however, the process of creating value from raw data requires meticulous planning and effective execution. This panel of thought leaders will shed light on current challenges and trends in data science and artificial intelligence from organizational, legal, ethical, and technological perspectives.

10:30 AM

PANEL DISCUSSION II:

Inclusion and Equity in Computing and Data Science

Panelists:

- Alycia Holwerda, Data Scientist, IBM
- Anahita Bahrami, PhD candidate, Illinois Institute of Technology
- Bonnie Holub, Senior Data Science and Analytics Leader, Teradata
- Diana DeSoysa, Principal Data Scientist, Optum
- Kate Bischoff, Employment Attorney & HR Consultant, tHRive Law & Consulting
- Queen Booker, Metropolitan State University *(Moderator)*

The purpose of the panel is to discuss ideas for enhancing educational and employment opportunities for women, people of color and other underrepresented groups in computing related fields. This panel is an opportunity to engage in a conversation of social and ethical significance.

L E A R N   C O N N E C T   I N N O V A T E

11:15 AM
PANEL DISCUSSION III:

Enhancing Opportunities in Research, Grants, and Publications

Panelists:

- Amit Deokar, Associate Professor, University of Massachusetts, Lowell
- Rassule Hadidi, Dean, Metropolitan State University
- Mohammed F. Mokbel, Professor, University of Minnesota
- Sarah Kruse, Minnesota State University, Mankato *(Moderator)*

This panel aims to provide useful tips about research, grants and publications to the audience especially graduate students and faculty members in computing related fields.

3:30 PM
INVITED TALK:

Remote Teaching and Learning Post COVID-19

Mohammed Ali

When colleges first began offering courses online, remote teaching and learning posed challenges. These challenges increased when the institutions were forced to teach virtually due to COVID-19. Many faculty and older students were not trained on how to use the technology, which created frustration for those who preferred face-to-face instruction over an online environment. Now that students and faculty are a year into instruction models developed to mitigate the effects of the pandemic, almost everyone has at least some experience in remote learning and teaching. Given that, administrators need to reevaluate policies surrounding course delivery, assuming that there will be a demand for a robust online/remote option for learning and teaching after the pandemic. Participants will learn the dos and don'ts of online learning and teaching, and various tools and tips for faculty and students. Moreover, there will be discussions related to policy changes.

Dr. Ali is a professor of computer science and mathematics and author of Remote Teaching: New Ways of Teaching Colleges and Universities.

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RESEARCH PAPERS

Meeting Room #1

12:30 PM ~ *Meeting Room #1*

Chatbot Knowledge Retrieval Supported by Forums

Michael Nyakonu, Metropolitan State University

1:00 PM ~ *Meeting Room #1*

Immutable Infrastructure with Actionable Monitoring on Containers (Kubernetes)

Mizan Hemani, Minnesota State University, Mankato

1:30 PM ~ *Meeting Room #1*

Using Prototyping to Teach Design Thinking

Mary Lebens, Metropolitan State University

2:00 PM ~ *Meeting Room #1*

Evaluation of P2P Loan Default Detection Models

Queen Booker, Metropolitan State University

Mousumi Munmun, Metropolitan State University

2:30 PM ~ *Meeting Room #1*

Domestic Violence During the COVID-19 Pandemic: A Survey of Published Articles

Amina Diawara, Minnesota State University, Mankato

3:00 PM ~ *Meeting Room #1*

An OS Benchmark Design to Compare Real World SQL Load on Distributed Big Data Systems

Michael Hart, Minnesota State University, Mankato

Meeting Room #2

12:30 PM ~ *Meeting Room #2*

Detecting Online Review Fraud Using Sentiment Analysis

Bryn Caron, Minnesota State University, Mankato

Rajeev Bukralia, Minnesota State University, Mankato

1:00 PM ~ *Meeting Room #2*

Automated stock recommendations using Financial Indicators and Machine Learning

Utkarsh Sharma, ASET, Amity University

Simran Gogia, ASET, Amity University

1:30 PM ~ *Meeting Room #2*

What does the twitter sentiments say about the COVID-19 Vaccine?

Ilma Sheriff, Minnesota State University, Mankato

Naseef Mansoor, Minnesota State University, Mankato

2:00 PM ~ *Meeting Room #2*

Game Prediction Model(s) for the National Basketball Association

Qin Sun, Minnesota State University, Mankato

Logan Cook, Minnesota State University, Mankato

RESEARCH PAPERS

2:30 PM *~ Meeting Room #2*

Wireless Sensor Networks (WSN): Technological Challenges and possible solutions when implementing WSN

Sapumal Darshana Salpadoru Thuppahi , Minnesota State University, Mankato

Michael Hart, Minnesota State University, Mankato

3:00 PM *~ Meeting Room #2*

Twitter Data Analysis about COVID-19 Vaccines using Sentiment Analysis

Maharu Wickramarathne, Minnesota State University, Mankato

Meeting Room #3

12:30 PM *~ Meeting Room #3*

The Impact of AES on SCADA Systems for Electrical Distribution that Contain HDFS Architecture

Justin Wren, Minnesota State University, Mankato

Michael Hart, Minnesota State University, Mankato

1:00 PM *~ Meeting Room #3*

Blockchain in COVID-19 Vaccine Distribution

Tiati Thelen, Minnesota State University, Mankato

Rajeev Bukralia, Minnesota State University, Mankato

All times are Central Standard Time
*** Research-In-Progress Paper*

1:30 PM *~ Meeting Room #3*

Ensemble Learning for Authorship Verification

Abdul Wahab Mohammad, Minnesota State University, Mankato

Michael Hart, Minnesota State University, Mankato

2:00 PM *~ Meeting Room #3*

Roadmap Comparison: Telehealth and NIST

Pamal Wanigasinghe, Minnesota State University, Mankato

Sarah Klammer Kruse, Minnesota State University, Mankato

2:30 PM ~ *Meeting Room #3*

Using Extreme Value Statistics to Assess Wildfire Risk in Colorado**

Christopher Maher, Minnesota State University, Mankato

John Burke, Minnesota State University, Mankato

Predicting Postpartum Depression using Machine Learning**

Luwis Andradige Ravindu Rasadun Andradi, Minnesota State University, Mankato

Sarah Klammer Kruse, Minnesota State University, Mankato

Parameter estimation of Non-negative Matrix Factorization in NLP: A Stochastic Approach**

Rubaiyat Islam, University of Hyogo

Mahbubur R. Syed, Minnesota State University, Mankato

Saadia Binte Alam, IUBAT

CHAPTER OFFICERS

RAJEEV BUKRALIA
Co-Founder & Chair

Dr. Rajeev Bukralia an associate professor and graduate research faculty in the Computer Information Science (CIS) department at Minnesota State University, Mankato. He serves as the program director for the MS in data science program. He is the recipient of several awards and fellowships including the Minnesota State Outstanding Educator Award. Dr. Bukralia is the founder of DREAM, a student organization focused on data science and AI. He previously served in several leadership positions including CIO and dean at different universities.

DALIA SULIEMAN
Vice Chair

Dr. Dalia Sulieman is an assistant professor in the Department of Computer Science and Cybersecurity at Metropolitan State University. Her academic work has been published in a variety of journals and conference proceedings. Her research interests are in social networks analysis, recommender systems, and machine learning.

SIMON SUNG JIN
Secretary

Dr. Simon Sung Jin is an associate professor and department chair of MIS in the College of Management at Metropolitan State University. His research interests are in the field of information privacy, business analytics, and IT innovation adoption & implementation. His academic work has been published in a number of international journals, conferences, and book chapters.

ISMAIL BILE HASSAN
Treasurer

Dr. Ismail Bile Hassan is an assistant professor and internship program director at the Department of Computer Science and Cybersecurity, Metropolitan State University. His research interests include e-health adoption, knowledge sharing, data science education, data mining, and e-government.

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THANKS FOR SUPPORT!

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The mission of the Twin Cities ACM Chapter is to organize and support events and activities related to computing and its applications in the Twin Cities area, Minnesota, and across the Upper Midwest region. The Chapter organizes the annual Colloquium on Analytics, Data Science, and Computing (CADSCOM) and the Colloquium on Information Assurance, Cybersecurity, and Management (CIACAM).

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