

Proceedings of the 48th Annual Midwest Instruction and Computing Symposium

Hosted by the University of North Dakota

Grand Forks, ND on April 10-11, 2015



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Career Fair

Friday, April 10

12:00 pm – 4:30 pm

Dakota Lounge

12:00 - 4:30 pm	Digi-Key	Curt Huot, Shawn Rakowski, Chris Kramer, Tim Julius, Ben DeHaan
	Rockwell Collins	Elise Loan, Donald Kearney, Michael Veit
	Fast Enterprises	Heidi Sayler, Evan Sylvester
	Epic	Eric Howe, Josh Leverington
	Iteris	Eric Kjeldergaard, Robert Bergman

Poster Session**Friday, April 10****2:00 pm – 4:30 pm****Dakota Lounge**

2:00 - 4:30 pm	Algorithmic Elimination of Unintentional DNA Hybridization in Complex DNA Mixtures	Geoff Converse, Park Mikels and Dakota Spurrier, Simpson College
	Three-Dimensional Printing and Scanning Web-Based Job Management System	Dayln Limesand, Jeremy Straub and Scott Kerlin, University of North Dakota
	The Creation of a Communication Systems for a Small Satellite at the University of North Dakota	Michael Hlas, Jeremy Straub and Ronald Marsh, University of North Dakota
	Selection of a Scheduling Algorithm for Control of a CubeSat-Class Open Source Spacecraft	Calvin Bina, Jeremy Straub and Ronald Marsh, University of North Dakota
	Monitoring, Analyzing, and Visualizing Distributed Computing Clusters	Jonathan Stupka and Peter Bui, University of Wisconsin - EauClaire
	Efficient Path Generation to Maximize Data Collection of Multiple Samples using Fluorescence Spectroscopy	Miles Kirts, Ellie Luebbe and Eric Marean, Simpson College

Technical Session I**Friday, April 10****1:30 pm – 2:30 pm****Session I.A: River Valley Room****Session Chair: Ron Marsh****Theme: Undergrad Research**

1:30 pm	Interdisciplinary Undergraduate Research in DNA Computing	Lydia Sinapova and Derek Lyons, Simpson College
2:00 pm	Involvement of Undergraduate Students in Research: A Comparison of Course Research Components, Paid Research Activities, Student-Led Projects and Independent / Directed Study Courses	Jeremy Straub, University of North Dakota

Session I.B: Lecture Bowl**Session Chair: Wen-Chen Hu****Theme: Cloud / Big Data**

1:30 pm	Analyzing and Moving Virtualization of Resources in the Cloud to Enhance Security and Performance	Dennis Guster, Ashok Jonnalagadda and Laura Lebentritt, St. Cloud State University
2:00 pm	An Empirical Study of NoSQL Databases by Using MongoDB Databases	Wen-Chen Hu , Naima Kaabouch, U North Dakota, and Hung-Jen Yang, Kaohsiung Normal University Taiwan

Session I.C: Badlands Room**Session Chair: Emanuel Grant****Theme: Mobile / Database Applications**

1:30 pm	Crowdsourcing Automobile Parking Availability Sensing Using Mobile Phones	Bereket Kifle, Jesus Villalobos, Jesus Quevedo-Torrero and Derek Riley, University of Wisconsin - Parkside
2:00 pm	Utilizing Analytics to Discern Campus Library Use	Punith Etikala, Laura Lebentritt, Erich Rice and Dennis Guster, St. Cloud State University

Session I.D: Ballroom**Session Chair: Peter Bui****Theme: Web Applications**

1:30 pm	Obelisk: Summoning Minions on a HPC Cluster	Grant Wuerker and Peter Bui , University of Wisconsin – Eau Claire
2:00 pm	WIDLE: A Web Based Linux Interface	Lucas Novoa, Charles Volzka and Peter Bui, University of Wisconsin – Eau Claire

Technical Session II

Friday, April 10

3:00 pm – 4:00 pm

Session II.A: River Valley Room

Session Chair: Noel Petit

Theme: Distributed Computing

3:00 pm	Openstack Swift as a Distributed Storage Backend	Eric Krenz , Mary Pearson and Anne Denton , North Dakota State University
3:30 pm	Raspberry Pi Computer Cluster	Ken Johnson, Merhawi Temnewo, Katherine Polys, Don Vo, Paulina Vo, Christian Grant and Noel Petit , Augsburg College

Session II.B: Lecture Bowl

Session Chair: Mark Hall

Theme: Computer Science Education

3:00 pm	Integration of Mathematical Concepts in the Computer Science, Information Technology and Management Information Science Curriculum	Donald Heier , Erik Sand , Mary Reed and Kathryn Lemm , University of Jamestown
3:30 pm	Musings on LMS, HCI, Clients and Native Programs	Curt Hill and Razib Iqbal , Valley City State University

Session II.C: Badlands Room

Session Chair: David Apostal

Theme: Mobile Applications

3:00 pm	Predicting Office Availability Using Crowdsourced Data	Francisco Mateo, David Sobol, Jesus Quevedo-Torrero and Derek Riley, University of Wisconsin - Parkside
3:30 pm		

Session II.D: Ballroom

Session Chair: Hassan Reza

Theme: Software Testing / Security

3:00 pm	A Survey of Effective and Efficient Software Testing	Akalanka Mailewa and Jayantha Herath, St. Cloud State University
3:30 pm	Gone Phishing: Surveying college students on phishing awareness and competency	Steven Vue, Mark Schmidt and Erich Rice, St. Cloud State University

Keynote: Dr. David P. Anderson



Topic: Volunteer Computing and the BOINC Software System

Dr. Anderson is a Research Scientist at the University of California, Berkeley. He directs the BOINC project, which develops middleware for volunteer computing.

Technical Session III**Saturday, April 11****9:00 am – 10:00 am****Session III.A: River Valley Room Session Chair: Scott Kerlin Theme: Academic Network Administration**

9:00 am	MiNet: Managing Internet Connectivity in Academic Computing Labs	Shaun Lynch, University of Wisconsin - Superior
9:30 am	Deploying an IPv4-IPv6 Dual-Stack Network in an Academic Computing Infrastructure	Shaun Lynch, University of Wisconsin - Superior

Session III.B: Lecture Bowl Session Chair: Marty Wolf Theme: Computer Science Education

9:00 am	Nifty Assignment: Model the Monte Hall Problem through Event-Driven Programming	Andrew Anda, St. Cloud State University
9:30 am	Flipping over Flipped Instruction	Mark Fienup, University of Northern Iowa

Session III.C: Badlands Room Session Chair: Emanuel Grant Theme: Web / Mobile Applications

9:00 am	The Fakkion Blog: Prototype of a blogging application that uses relational design	Deovandski Skibinski Junior and Anne Denton , North Dakota State University
9:30 am	Recording Class Attendance in a Student Registration System	Sanhu Li, Mao Zheng and Hao Fan, University of Wisconsin – La Crosse

Session III.D: Ballroom Session Chair: Ron Marsh Theme: Systems and Control

9:00 am	How to 3D Print a Photorealistic Banana for Scale	Daniel Corrigan and Brandon Rossell, Doane College
9:30 am	Utilizing the Portability of Docker to Design a Portable and Scalable Continuous Integration Stack	Jordan Goetze, North Dakota State University

Technical Session IV**Saturday, April 11****10:30 am – 12:00 pm****Session IV.A: River Valley Room Session Chair: Scott Kerlin Theme: Scientific Applications**

10:30 am	Modeling of Linker Stoichiometry for Optimization of DNA Nanostructure Self-Assembly	Maddie Thomas, Esteban Sierra and Blake Tish, Simpson College
11:00 am	Unearthing Digital Artifacts for Public Archaeology	Max McGrath, Anna Munns, Otto Borchert, Guy Hokanson, Jeffrey Clark and Brian M. Slator, North Dakota State University
11:30 am	A Mobile Application for Collecting Plant Observation Data	Jingbo Chu, Yu Qiu, Mao Zheng and Tom Gendreau, University of Wisconsin – La Crosse

Session IV.B: Lecture Bowl Session Chair: Elena Machkasova Theme: Tools for Teaching

10:30 am	An ER Modeling Tool	Ron McFadyen , University of Winnipeg
11:00 am	Developing beginner-friendly user interactions for the Clojure programming language	Henry Fellows, Aaron Lemmon, Max Magnuson, Emma Sax, Paul Schliep and Elena Machkasova , University of Minnesota - Morris
11:30 am	Graph Algorithm Visualization Program Demonstration	David Pagels, University of Minnesota - Morris

Session IV.C: Badlands Room Session Chair: David Apostol Theme: Algorithms / AI

10:30 am	Understanding 31-derful	Emily Alfs, Doane College
11:00 am	Pronoun Reference Resolution On the Dutch Word ‘Het’, An Empirical Study	Bram Oosterlee and Noel Petit , Augsburg College
11:30 am	Optimizing(0,1)-Matrix-Vector Product Computations via Minimum Spanning Trees	Jeffrey Witthuhn and Andrew Anda, St. Cloud State University