Final Program

47th Annual Midwest Instruction and Computing Symposium

Epic

Hosted by Epic and the MICS Steering Committee

Verona, WI on April 25-26, 2014

Thanks to Our MICS 2014 Sponsors!

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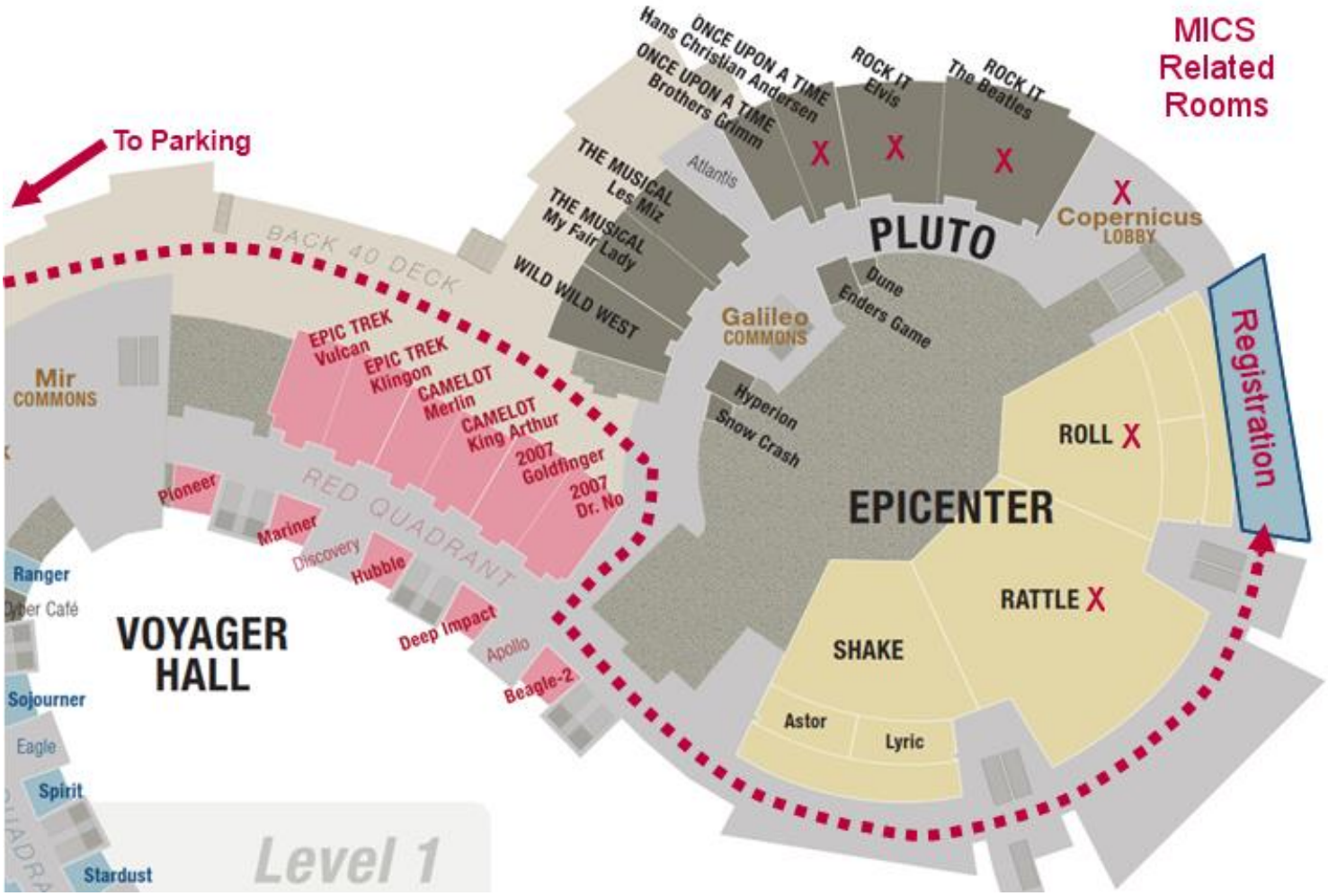
Map of Epic's Campus

MICS Registration starts at 9:30 AM in the **Roll Lobby Area of Epicenter in Voyager Hall**



Schedule of Events

Friday, April 25th

09:30 am - 02:00 pm	Registration, Poster Setup, and Optional Tours of Epic for Early Arrivals	Roll Lobby
11:00 am - 12:30 pm	Career Fair Setup	Roll Lobby
12:30 pm - 02:00 pm	Concurrent Presentations: Technical Session I and Career Fair	Rattle, Roll, Elvis & The Beatles
02:00 pm - 02:30 pm	Refreshment Break	Copernicus Lobby
02:30 pm - 04:00 pm	Concurrent Presentations: Technical Session II and Career Fair	Rattle, Roll, Elvis & The Beatles
04:15 pm - 06:30 pm	Robotics Contest Hoagie Supper	Roll Copernicus Lobby
06:30 pm - 07:45 pm	Keynote Speaker & Programming Contest Instructions	Rattle
08:00 pm - 11:00 pm	Programming Contest	Elvis & The Beatles

Saturday, April 26th

08:00 am - 08:30 am	Registration Refreshments	Roll Lobby Copernicus Lobby
08:30 am - 10:00 am	Concurrent Presentations: Technical Session III and Career Fair	Rattle, Roll, Elvis & The Beatles
10:00 am - 10:30 am	Refreshment Break	Copernicus Lobby
10:30 am - 12:00 pm	Concurrent Presentations: Technical Session IV and Career Fair	Rattle, Roll, Elvis, The Beatles & Hans Christian Andersen
12:00 pm - 1:30 PM	Wing Party, Awards, and Closing Remarks	Mir Commons

Technical Session I 12:30 PM - 2 PM Friday, April 25

Robotics & AI Applications

Location: Rattle
Session Chair: Aleksandar Tomovic

Algorithm for Arm Position Reconstruction from Optical Motion Capture Data with Noisy or Missing Data Authors: Meredith Moore, Helene Moorman, James Gao, and Jose Carmena	12:30 pm
A Comparative Performance Analysis of Filtering and Smoothing Techniques on a Simulated Unmanned Aircraft System Authors: Tamaike Brown, Eunjin Kim and Emanuel Grant	1:00 pm
Path Planning Algorithms For The Robot Operating System Authors: Aleksandar Tomovic	1:30 pm

Computational Biology Tools

Location: Roll
Session Chair: Tom O'Neil

A Comparative Analysis of Popular Phylogenetic Reconstruction Algorithms Authors: Evan Albright, Jack Hessel, Nao Hiranuma, Cody Wang and Sherri Goings	12:30 pm
Accelerating Biomolecular Nuclear Magnetic Resonance Assignment with A* Authors: John Emmons, Joel Venzke, Rachel Davis, Paxten Johnson, Leah Robison, David Mascharka,	1:00 pm
(No presentation in the 1:30 slot)	1:30 pm

Computer Systems Education Tools

Location: Elvis
Session Chair: Shaun Lynch

Virtualization in the Academic Computing Infrastructure: The Rise of Boutique Computing Authors: Shaun Lynch	12:30 pm
Operating Systems Learning Environment with VMware Authors: Akalanka Mailewa and Jayantha Herath	1:00 pm
Using Common Linux Commands to Trace the Origins of Potentially Rogue Processes within a Linux Host (Virtual Machine) Authors: Dennis Guster, Martin Smith and Laura Lebentritt	1:30 pm

Programming Languages & Tools

Location: The Beatles
Session Chair: Elena Machkasova

Exploration of parallelization efficiency in the Clojure programming language Authors: Henry Fellows, Joe Einertson and Elena Machkasova	12:30 pm
Developing a Graphical Library for a Clojure-based Introductory CS Course Authors: Paul Schliep, Max Magnuson and Elena Machkasova	1:00 pm
Adopting Node.js and Coffeescript in a Software Design Course Authors: Maxwell Marti	1:30 pm

2:00 – 2:30 PM Posters and Career Fair Roll Lobby
Refreshments Copernicus Lobby

2:00 – 2:30 PM Posters and Career Fair — Roll Lobby
Refreshments — Copernicus Lobby

Posters

Location: Roll Lobby
Time: 2:00pm-2:30pm

A Genetic Algorithm for Evolving DNA Sequences
Authors: Kendra Klocke, Abby Lantzky and Kyle Reimers

Calculating the Melting Temperature of Linker DNA
Authors: Louis Joslyn, Adrian Gibson and Thomas Klein

Designing Nanostructures with DNA
Authors: Tony Clark, Jamie Ethington and Connor Uhlman

Social Gaming with Chromecast
Authors: Corey Feiock, Justin Feiock, Nick Hasz and Peter Bui

Comparing Genetic Programming and Neural Network Representations for Cooperative Agents
Authors: Emily Johnston, Nao Hiranuma and Sherri Goings

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Keynote: **Josh Brauer**

Mobile applications have become an essential part of our daily lives, and healthcare is no exception. In this talk, Josh will discuss many aspects of mobile app development along with some of the core challenges that face today's mobile developers both inside and outside of healthcare. He'll also spend time covering some of the key differences in developing mobile apps for the two most predominant mobile platforms - iOS and Android

Technical Session II 2:30 PM - 4 PM Friday, April 25

Algorithms and Tools

Location: Rattle
Session Chair: Timothy Urness

Multicast Network Coded Flow in Grid Graphs Authors: John Gormley and Eric Manley	2:30 pm
Exploring Alternative Clustering for PIY Source Code Detection Authors: Pa Woua Vang and James Schnepf	3:00 pm
A Visualization Program for Subset Sum Instances Authors: Thomas O'Neil and Abhilasha Bhatia	3:30 pm

AI and Machine Learning

Location: Roll
Session Chair: Nic McPhee

Gaussian Mixture Model for Indie Game Level Design Authors: Mukul Nautiyal and Enjim Kim	2:30 pm
Applying Machine Learning to Energy Usage Authors: Andrew Latterner	3:00 pm
Analysis of Genetic Programming Ancestry Using a Graph Database Authors: David Donatucci, Kirbie Dramdahl and Nic McPhee	3:30 pm

Software Engineering/Design Patterns

Location: Elvis
Session Chair: Kasi Periyasamy

A Requirements Engineering Tool Based on Use Cases Authors: Jenny Gijo and Kasi Periyasamy	2:30 pm
A Proposed Method for Achieving Increased Software Maintainability Through Documentation Authors: Justin Huber and Hassan Reza	3:00 pm
Design and Implementation of Infinity Research Assistant Authors: Nick Oliver and Yi Liu	3:30 pm

Panel: Niffy Assignments and Tools

Location: The Beatles
Moderator: Stuart Hansen

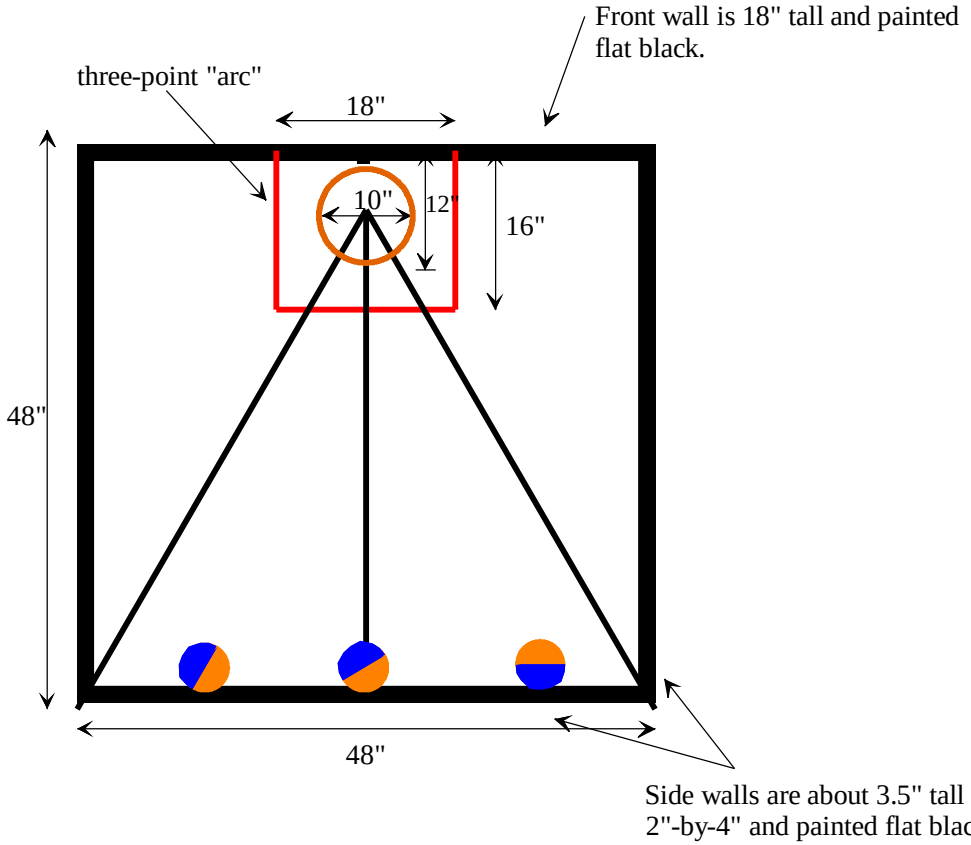
Stuart Hansen (moderator) UW - Parkside Kristine J. Peters Ripon College Teresa Nickeson University of Dubuque	2:30 pm
Tim Gegg-Harrison and Nicole Anderson Winona State University David R. Musicant Carleton College	3:00 pm
Dean Stevens and Randy Campbell Morningside College Samantha S. Foley UW – La Crosse	3:30 pm

4:15 – 6:30 PM	Robotics Contest	Roll
	Hoagie Supper	Copernicus Lobby
6:30 – 7:30 PM	Keynote Speaker	Rattle
7:30 – 7:45 PM	Programming Contest Instructions	Rattle
8:00 – 11:00 PM	Programming Contest	Elvis & The Beatles

Robotics Contest: Tilt-A-Hurl

The MICS 2014 robot contest will consist of a 3-point shot basketball tournament. An autonomous robot scores 3 points if it shoots a basket while entirely outside the three-point “arc.” A basket shot on or within the three-point arc (including a dunk) scores NO points. Only one robot will be on the court at a time trying to score as many points as it can in 2 minutes. Each robot will perform three 2-minute runs on the court. The sum of its best two runs will be used to decide winners with the lowest run’s score being used as the primary tie-breaker. A secondary tie-breaker (only used to determine the top three places) will be a fourth run on the court, but the goal is to reach 6-points (two 3-pointers) in the least amount of time.

The court will be made from a 4’x4’ sheet of particle board that is painted white. The front wall is 18” tall, and the remaining walls are standard 2”-by-4” lumber so they are about 3.5” tall. All walls are painted flat black. A “standard” (~10” diameter Nerfoop) Nerf basketball hoop is positioned 9” high along the middle of the back wall and parallel to the court floor. Three black lines (3/4”-wide black vinyl electrical tape) radiate from the center of the hoop as shown. The three-point “arc” will actually be an 18”-by-16” red rectangle (3/4”-wide red vinyl electrical tape). All walls will be perpendicular to the court-floor, but the front end of the court will be elevated 3.5” (hence the name: “tilt-a-hurl”) so balls will tend to roll toward the back wall.



At the start of a 2-minute run, a robot must be touching the back wall and can be touching or holding one ball, but during the match it may carry any number of balls. Before the run starts, the team can position the remaining balls anywhere along the back wall. A total of one to three balls can be on a court. Balls leaving the court during a 2-minute run will be returned to the back wall by a judge so as not to interfere with the robot.

The maximum size of the robot at the start of each run is 12" by 12" by 18" (vertical). After the run starts, the robot can assume a maximum size of 18" by 18" by 18" which it cannot exceed at any time during a run.

Saturday, April 26

8:00 – 8:30 AM Registration — Roll Lobby
Refreshments — Copernicus Lobby

Technical Session III 8:30 – 10:00 AM Saturday, April 26

Web

Location: Rattle
Session Chair: Kristine Peters

Demonstrating a Simple Device Fingerprinting System Authors: Michael Rausch, Andrew Bakke, Suzanne Patt, Elizabeth Wegner and David Scott	8:30 am
Searching for Indicators of Device Fingerprinting in the JavaScript Code of Popular Websites Authors: Michael Rausch, Nathan Good and Chris Hoofnagle	9:00 am
Evaluation and Implementation of machine learning techniques in usability testing for web sites Authors: Christoffer Korvald, Eunjin Kim and Hassan Reza	9:30 am

3D Modeling

Location: Roll
Session Chair: Chris Johnson

Classifying Objects from a 3D Model Authors: Adrian Rossing and Kayla Bonnstetter	8:30 am
Global Orientation for Feature Matching in Corresponding Planes Authors: Stefan Mellem, Thomas Scott and Ian Zewiske	9:00 am
Collaborative Dataset Building: Action-Based Modification and File-Based Data Management Authors: Connor Wray, Shane Allen and Armaan Bindra	9:30 am

Computer Science Education

Location: Elvis
Session Chair: Noel Petit

Hacking as a Game Authors: Terry Letsche	8:30 am
How We're Changing Computer Science Education and How You Can Help Authors: Jeremy Straub, Scott Kerlin and Tom Stokke	9:00 am
Teaching Computers in Tanzania Authors: Noel Petit	9:30 am

Computer Science Pedagogy

Location: The Beatles
Session Chair: Teresa Nickeson

An Experiential Education Approach to Teaching Software Project Management Authors: Jeremy Straub and Scott Kerlin	8:30 am
Marshalling Technology for Learning Authors: Curt Hill	9:00 am
Data Analytics Experiential Learning Authors: Teresa Nickeson and Nicholas Rivera	9:30 am

10:00 – 10:30 AM Refreshments — Copernicus Lobby

Technical Session IV 10:30 – Noon Saturday, April 26

Web Applications

Location: Rattle
Session Chair: Peter Bui

Dark Nebula: Using the Cloud to Build a RESTful Web Service Authors: John Fisher, Robert Fisher and Peter Bui	10:30 am
A Web Portal For An Animation Render Farm Authors: John Rankin, Travis Boettcher and Peter Bui	11:00 am
On Ramp to Parallel Computing Authors: Zackory Erickson and Samantha Foley	11:30 am

Miscellaneous

Location: Roll
Session Chair: Mark Fienup

Parallel Computing in the CS Curriculum via the Computer Architecture Course Authors: Mark Fienup	10:30 am
Ontology based Knowledge Model Research Authors: Fei Wang and Hao Fan	11:00 am
Color Characterization and Calibration of an External Display Authors: Jonathan Sandness, Austin Martin and Andrew Crocker	11:30 am

Computer Science Education

Location: Elvis
Session Chair: J. Philip East

Managing Group Projects with Visual Studio Online Authors: Michael Haugrud	10:30 am
Thinking about Conditional Thinking Authors: Stephen Hughes and J. Philip East	11:00 am
Satellites and Computer Communication in the Classroom Authors: Noel Petit	11:30 am

3D Models and Cameras

Location: The Beatles
Session Chair: Olaf Hall-Hoft

Large Scale 3D Modeling in Real Time Authors: Margaret Wanek, Tommy Markley and Douglas Binder	10:30 am
Resolving Matched Stereoscopic Surfaces into a Three-Dimensional Model Authors: Stephen Lee, Guanlun Mu and Sam Bedell	11:00 am
Error Minimization in 3-Dimensional Model Reconstruction Using Sparse Bundle Adjustment and the Levenberg-Marquardt Algorithm on Stereo Camera Pairs Authors: Luke Bonde, Allison Brumfield and Ye Yuan	11:30 am

Mobile Applications

Location: Hans Christian Anderson
Session Chair: Mao Zheng

Automatically Adjust The Smart Phone Authors: Zhenyu Zhang and Mao Zheng	10:30 am
Using Android Fragments in A Campus Guide System Authors: Boheng Wei, Xi Yan and Mao Zheng	11:00 am
Essential Android Technologies and Google Maps APIs for Location-Based Services Authors: Wen-Chen Hu, Naima Kaabouch, Hung-Jen Yang and Xiwei Wang	11:30 am

12:15 Wing Party, Awards, and Closing Comments Mir Commons