

Final Program

45th Annual Midwest Instruction and Computing Symposium



Department of Computer Science

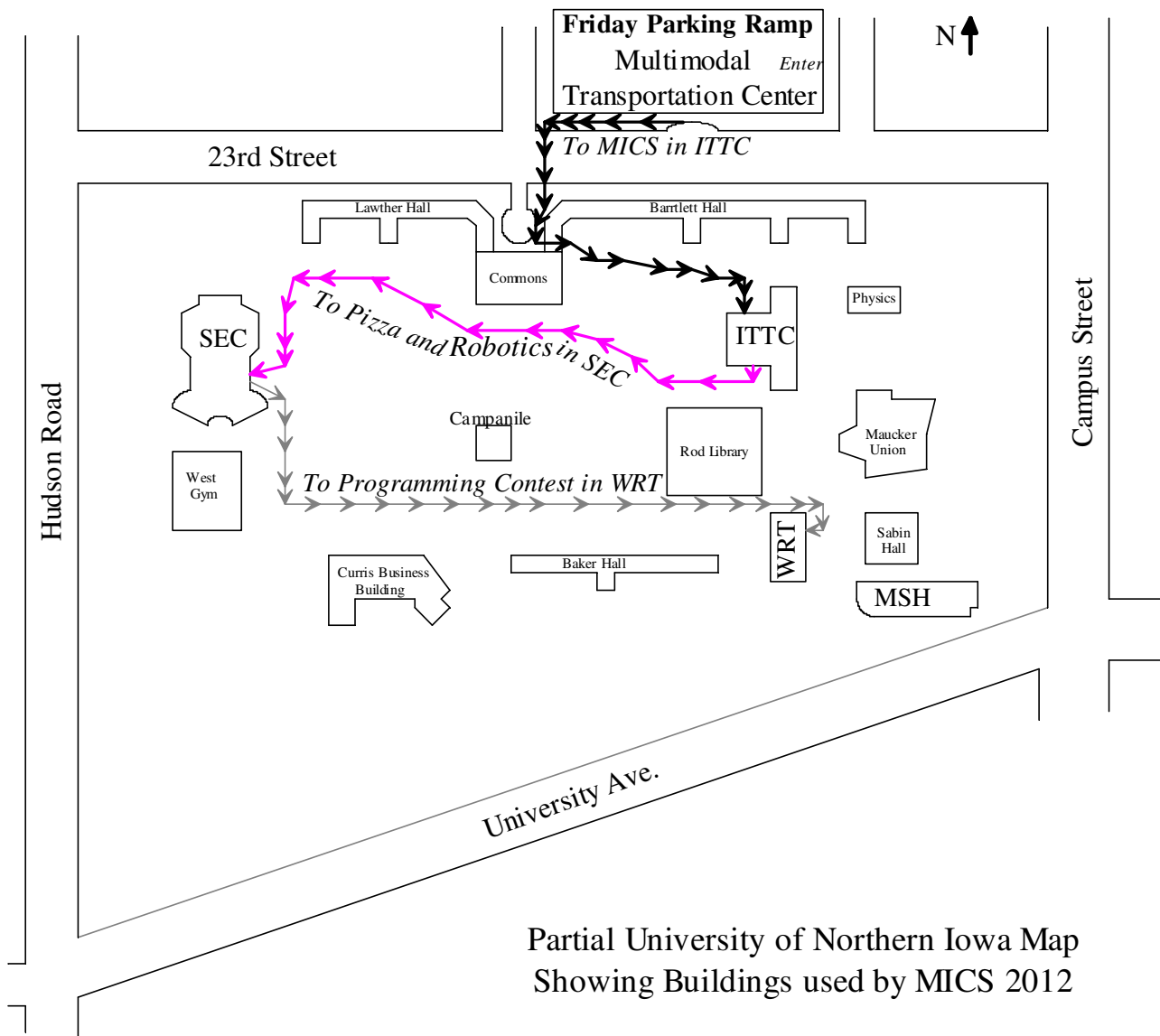
April 13 - 14, 2012

Thanks to Our MICS 2012 Sponsors!



MICS Registration starts at 11:30 AM in the **Lounge Area on the west-side of the 100 Level (one floor above the ground floor) of ITTC (Innovative Teaching Technology Center)**

Friday Parking: Use the “Pay by Stall” parking in the Multimodal Transportation Center ramp (see map below). Sorry, but you will need to pay for parking.



ITTC 28	Artificial Intelligence Applications	Session Chair: Philip East
12:30	Augmented Reality using a Neural Network	Pye Phyo Maung
1:00	Approximating Missing Results using an Artificial Neural Network	Tyler Kostuch, Trent Thomas, Tim Julius, Jayson Walberg, Josette Staples, David Block and Francois Neville
1:30	Augmenting Crowd-sourcing Techniques with Artificial Intelligence	Travis Archer

ITTC 29	3D Modeling and Computer Vision	Session Chair: Olaf Hall-Holt
12:30	3D Modeling in Blender Based on Polygonal Data	James Ribe, Alora Killian and Daniel Anderson
1:00	Polygon-Based Stereo Matching Using Normalized Cross Correlation	Bjorn Mellem and Francois Guiot
1:30	An Exploration of Surface Detection in Stereo Vision	Matt Blanchard, Cody Gronseth and Jon Sandness

ITTC 134/146	Educational Technology	Session Chair: Ben Schafer
12:30	Development Systems: A Review	Curt Hill
1:00	Moodle Integrated Command Structure	Don Gable
1:30	Student-Owned Devices for Classroom-wide Communication and Collaboration	J. Ben Schafer and Stephen Hughes

ITTC 322/328	Misc.: Video Game Development & 3D-Display Technology	Session Chair: Thomas Gibbons
12:30	The Creation of a Bullet Hell Game Engine	Curtis Mackie
1:00	FPGArcade: Motivating the Study of Digital Hardware	Thomas Griebel and Nicholas Burek
1:30	A Qualitative Analysis of 3D Display Technology	Mary Scaramuzza, Shane Nelson and Nicholas Blackhawk

Break, Career Fair, and Poster in Lounge Area on 100 Level of ITTC

Poster	Comparing Single-Agent and Multiagent Reinforcement Learning in a Cooperative Setting	Douglas Macfarland
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ITTC 28	Genetic Algorithms	Session Chair: Joseph Clifton
2:30	Genetic Algorithms in College and University Housing	Chris Craven
3:00	Comparing 2D and 3D Geographies in Evolutionary Computation	Nicholas Cornhill
3:30	Optimization of Tile Sets for DNA Self-Assembly	Joel Gawarecki, Adam Smith, Jaris Van Maanen and Linsey Williams

ITTC 29	Mobile Applications	Session Chair: Ben Schafer
2:30	Architecture Design to Support a Smartphone-based Student Response System	Alexander Preston and Aaron Mangel
3:00	Location-Based Services Design and Implementation Using Android Platforms	Wen-Chen Hu, Naima Kaabouch, Hung-Jen Yang and Ather Sharif
3:30	An Android-based Instant Message Application	Qi Lai, Mao Zheng and Tom Gendreau

ITTC 134/136	Computer Science Educational Tools	Session Chair: Brandon Olson
2:30	Experiences with a UML Diagram Critique Tool	Robert W. Hasker, James Reid and Andrew Rosene
3:00	Test Case Generation from UML Models	Yiwen Wang and Mao Zheng
3:30	Reshaping Curriculum Design from Concept to Assessment through Technology Driven Methodologies	Washington Helps and Emanuel Grant

ITTC 322/328	Computer Systems	Session Chair: Dennis Guster
2:30	Rebuilding an Academic Network Infrastructure Employing Virtualization and Failover Clustering	Shaun Lynch
3:00	Using Node and Batch Analysis to Efficiently Render Animations	Robert Foertsch and Brian Slator
3:30	Configuring and Tuning a Distributed Computer System to Support Complex Molecular Simulation: Phase I Collecting Performance Metrics	Medina Sultanova, Jake Soenneker and Dennis Guster

4:30-6:30 PM MICS Robotics Contest and Pizza Party in SEC

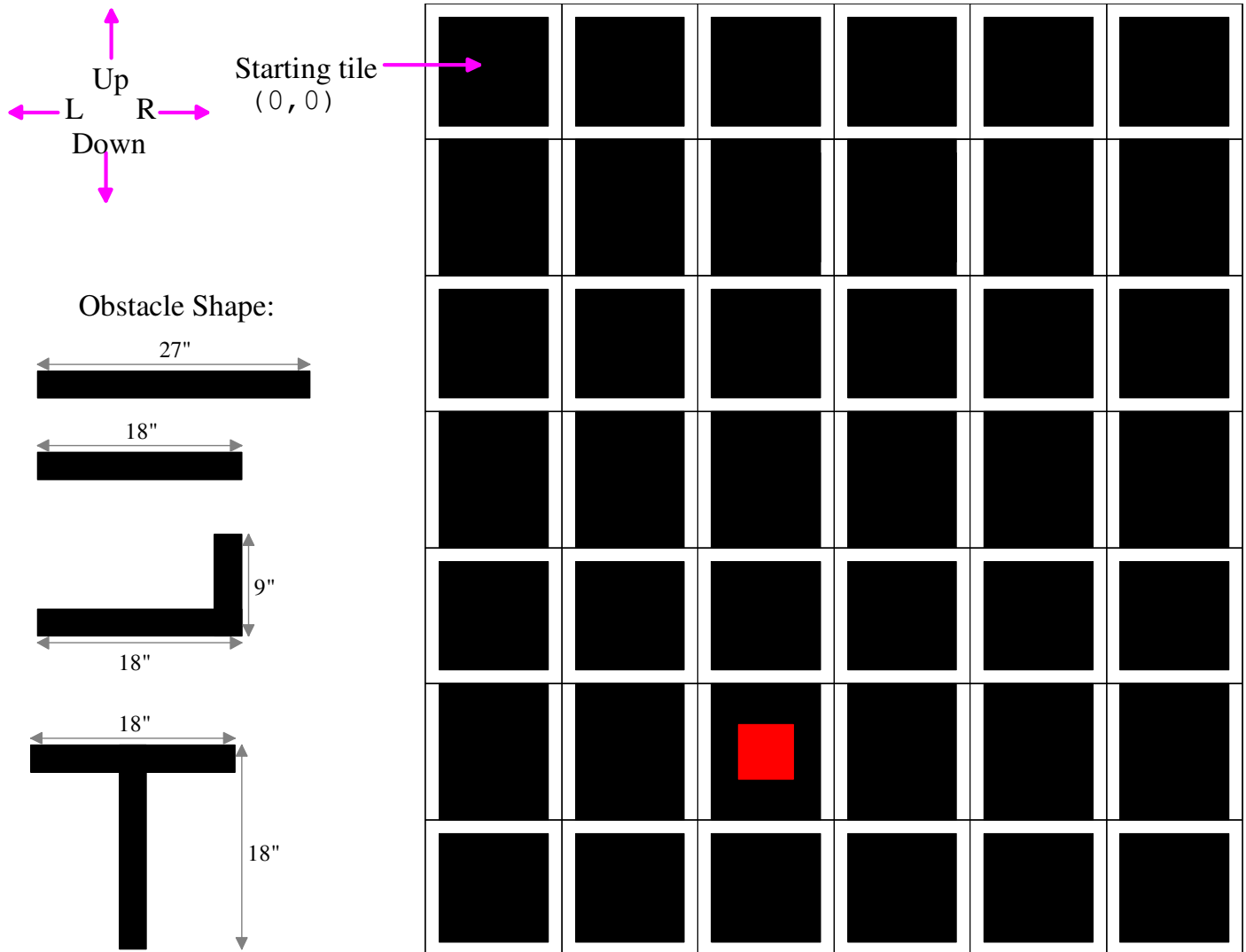
6:30 – 7 PM Programming Contest Instructions in SEC 244/245

7 – 10 PM MICS Programming Contest in Wright Hall

Grid-World Robot Race Rules

The MICS 2012 robot contest will consist of your robot navigating a grid-world with obstacles to find a goal. The grid will be 7 rows by 6 columns of 12"x 12", black, vinyl floor tiles. Even-row tiles will have 0.75" white vinyl electrical tape along all four sides, and odd-row tiles will have white tape only on vertical sides.

Robots will always start in grid cell (0,0) facing down. Their task is to navigate completely within the grid-world to the goal cell (a 5" x 5" red square in the middle of a tile) located "randomly", and then return to the starting grid cell (0,0). Upon reaching the goal cell and returning to the start cell, the robot must indicate that it has reached these cells by playing a song (or just beeping, or spinning around, etc.). The robot with the fastest round-trip time wins. A sample grid without obstacles is shown on the right below. Navigation of the grid-world will be complicated by up to four obstacles that can be placed within the grid-world. The four obstacles will be made from 4"x 4" lumber (or two 2-by-4's nailed together) with their shapes on the left below.



The obstacles will be painted flat black and will be oriented such that the 4" lumber is centered on grid lines. The goal cell will be reachable by at least one side which is not along the outer border.

Each robot will attempt to navigate through two different grid-worlds. On each attempt, a robot will be allowed a maximum of 4 minutes to navigate a grid-world. Robots will always start in the middle of the (0, 0) starting (upper-left-hand-corner) tile facing "down". If a robot completely exits the grid-world (i.e., all of its wheels cross the outer border strip), it will be returned to the starting point by its builder **while the clock is still running**. The robot will be restarted facing "down" with the same program being run.

Technical Session III 8:30 – 10:00 AM Saturday, April 14

ITTC 28	Algorithms	Session Chair: Thomas O'Neil
8:30	Three Approaches to Solving the Motif-Finding Problem	Zachariah Huebener and Kylie Van Houten
9:00	AIRS: Anytime Iterative Refinement of a Solution	Sam Estrem and Kurt Krebsbach
9:30	The Prospects for Sub-Exponential Time	Thomas O'Neil

ITTC 29	3D Modeling and Cameras	Session Chair: Olaf Hall-Holt
8:30	Stereo Image Capture and Interest Point Correlation for Interior 3D Modeling	Eileen King, Tommy Markley and Andrew Crocker
9:00	Refinement of Plane Based Calibration Through Enhanced Precision of Feature Detection	Rogan Magee, Jared Brown and Leah Roth
9:30	Creating Panoramic Images: A Hardware Comparison Between Sony BRC-300 and EVI-HD1 Cameras	Chris Cornelius, Charles Nye and Ian McGinnis

ITTC 134/136	Computer Science Education	Session Chair: Thomas Gibbons
8:30	Western Technical College and University of Wisconsin - La Crosse 2+2 Computer Engineering Technology-Computer Science Program	Jeff Fancher and Thomas Gendreau
9:00	A Grand, Unified Project: Doane SuDoKu	Mark Meysenburg
9:30	Transforming the Curriculum with Big Data: The Need for Data Resources in the Computer Science Curriculum	Brandon Olson and Thomas Gibbons

ITTC 322/328	Security	Session Chair: Joline Morrison
8:30	Security Strategies for a Web-Based Peer Review System	Zachary Forster, Isaac Schemm, David Spiegel, Matthew Wisby, Joline Morrison and Mike Morrison
9:00	Network Security: A Case Study	Susan Lincke
9:30	Using the Strombringer System Tool Suite to Test for Vulnerabilities in a University Research and Development Autonomous System	Dimitri Podkorytov, Dennis Guster and Jake Soenneker

Wright Hall 120	Keynote Speaker: Dr. John McCormick
8:30 -10:30	Tour of the Real-Time Embedded Systems ("Train") Lab

10:00 – 10:30 Break in Lounge Area on 100 Level of ITTC

ITTC 28	Artificial Intelligence Applications	Session Chair: Philip East
10:30	Chess AI	Erik Steinmetz, Noel Petit and Ahmet Erciyas
11:00	Iterative-Expansion A*	Colin Potts and Kurt Krebsbach
11:30	EnMAS: A New Tool for Multi-Agent Systems Research and Education	Connor Doyle and Martin Allen

ITTC 29	Misc. Computer Science Education	Session Chair: Tom Stokke
10:30	Database Systems Course: Service Learning Project	Sherri Harms
11:00	The Kiwi Project Revisited: Promoting Student Learning Through Community Involvement	Tom Stokke
11:30	Affordable USB Forensics	Philip Polstra

ITTC 134/136	Novel Computer Science Courses	Session Chair: Stephen Hughes
10:30	Evaluating the Use of Flowchart-based RAPTOR Programming in CS0	Michael Thompson
11:00	Three-phase Motor Control in a Real-Time Embedded Systems Programming Course	Joseph Clifton
11:30	Teaching Mobile Computing using Proof-of-Concept and Studio-based Instruction	Stephen Hughes

ITTC 228	Misc. Java Programming Language	Session Chair: Mark Hall
10:30	Improving the Interoperability between Java and Clojure	Stephen Adams
11:00	The Role of Method Call Optimizations in the Efficiency of Java Generics	Jeffrey Lindblom, Seth Sorensen and Elena Machkasova
11:30	Java Wiki Integrated Development Environment	Mark Hall

ITTC 322/328	Web Services	Session Chair: Noel Petit
10:30	Fuzzy Web Information Retrieval System	Joseph Lee and Eunjin Kim
11:00	Building a Data Pipeline for Antarctic Research	Brian Dawn and Noel Petit
11:30	Java & Video: Install Once, Play Everywhere	Jack Spirou, Erik Steinmetz, Wojciech Komornicki and Noel Petit

12:15-2 PM Lunch, Keynote, and Awards in MSH

Lunch, Keynote, and Awards

12:15 in McCollum Science Hall (MSH on map) Lantz Auditorium

Keynote

Dr. John McCormick is a Professor of Computer Science at the University of Northern Iowa since 1996. He is a senior member of ACM, SIGCSE, and SIGAda and an affiliate of the IEEE Computer Society. His interests are in the design and implementation of real-time and high integrity systems and the design of courses and laboratories to support teaching of these topics. His work has earned him several *Excellence in Teaching* awards and *Best Paper* awards, and resulted in several textbooks: *Building Parallel, Embedded, and Real-Time Applications with Ada* (2011) and *Ada Plus Data Structures: An Object-Oriented Approach* (2nd Edition, 2007).



His keynote talk entitled “Trains, Planes, and Automobiles: The Need for Quality Embedded Systems Education” addresses the skills needed by computer science graduates to develop safe, reliable software for embedded systems, and his experiences developing a successful laboratory for a junior level course in real-time embedded software development based on a large model railroad.

Before leaving, please turn in your conference evaluation in the boxes in by the Auditorium doors!