ACM Southeast Conference
2014

Program and Schedule

March 28, 29 2014
Kennesaw State University
Message from the Conference Chair:

Welcome to the 2014 ACM Southeast conference!

For this year’s meeting, the committee elected to try a conference model that would be inclusive of a wide audience and a wide list of presenters, while also striving for a strong full-paper acceptance rate in order to sustain the high quality reputation that ACM Southeast has maintained over the years. We also decided to offer special tracks in current areas in computing, resulting in a Data Mining and Big Data Track, and a Game Design and Development Track. The schedule that you see is the result, with categories for full papers, and short papers presented as posters. Both categories of accepted papers have gone through the double-blind peer-review process, and are included in the distributed USB conference proceedings, and will also become part of the ACM Digital Library. Separate review processes were run for the full papers and short papers, staggered so that a declined submission could be resubmitted in the short paper category.

The committee targeted an acceptance rate of 35% for regular papers (6 pages in length), with the actual acceptance rate for these papers coming in at 38%. Overall, the program has a large number of full papers, short papers and posters, and three tutorials spread over most of two days, for over 90 presentations and publications. Overall attendance be over 120 attendees.

Again this year, the proceedings are being distributed at the conference on USB memory sticks. A new feature this year is a sortable and searchable proceedings index, sortable by paper ID, author, title, and track, (requiring that your browser allow executing scripts). This very convenient and helpful feature was developed by Dr. Ben Setzer.

We are very pleased to welcome thank our keynote speakers:

Dr. Tiffany Barnes, University of North Carolina at Charlotte.
Dr. Jennifer Priestley, Director of the (new) Ph.D. in Data Science and Analytics at Kennesaw State University

And special thanks to our themed track chairs and our game showcase and exposition chair:

Jinghua Zhang, Ph.D., Game Design, Winston-Salem State University
Dr. Ying Xie, Data Mining and Big Data, Kennesaw State University
Dr. Jon Preston, Game Design Showcase, Southern Polytechnic University

I would also like to express my special thanks to Dr. Selena He, Program Chair, for her outstanding work in overseeing the program and review process. And thanks also to all of the many reviewers and program contributors who have made this conference possible.

For the ACM Southeast 2014 conference committee,

Ken Hoganson, 2014 Conference Chair
# ACMSE 2014 CONFERENCE SCHEDULE

## FRIDAY MARCH 28

<table>
<thead>
<tr>
<th>TIME</th>
<th>EVENT</th>
<th>ROOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:30 – 12:00</td>
<td><strong>Tutorial:</strong> Using C and the GNU Scientific Library on LINUX for Implementing Computational Models, Jose Garrido.</td>
<td>KC 300</td>
</tr>
<tr>
<td>10:15 – 11:45</td>
<td><strong>Campus Tour – RSVP</strong> <a href="mailto:snorth@kennsaw.edu">snorth@kennsaw.edu</a> (678-520-6102)KSU Owl bus – Front of the KSU Center</td>
<td></td>
</tr>
<tr>
<td>12:20 – 1:20</td>
<td><strong>Lunch and Welcome Keynote</strong> Dr. Mark Anderson, Dean of the College of Science and Mathematics, Kennesaw State University</td>
<td>KC 400</td>
</tr>
<tr>
<td>1:30 – 2:50</td>
<td><strong>Regular Paper Sessions</strong> (20 minutes each)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Session 1:</strong> Data Retrieval (Chair: Dr. Sarah North)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Issam Hadj Laradji, Salahadin Mohammed and Lahouari Ghouti. <em>XML Classification using Ensemble Learning on Extracted Features</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manar Alohaly and James Teresco. <em>Popularity-Based Temporal Relevance Estimation for Micro-Blogging Retrieval</em></td>
<td>KC 460</td>
</tr>
<tr>
<td></td>
<td><strong>Session 2:</strong> Big Data Session 1 (Chair: Dr. Ying Xie)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Benjamin Whetstone, Varavut Limpasuvan and Brian Larkins. <em>GPU Acceleration of the Advanced Regional Prediction System (ARPS)</em></td>
<td>KC 462</td>
</tr>
<tr>
<td></td>
<td>Ying Xie, Hossain Shahriar, Jing He, Sarah North, Ben Setzer and Ken Hoganson. <em>CS++: Expanding CS Curriculum via Open Cybersecurity Courseware</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Joseph Hannigan, Suzanne Matthews, John Wickiser and Paulo Shakarian. <em>A Network-Based Approach for Identifying Cancer Causing Pathogens</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Session 3:</strong> Software Engineering (Chair: Dr. Jeff Gray)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Amr Desouky and Letha Etzkorn. <em>Object Oriented Cohesion Metrics: A Qualitative Empirical Analysis of Runtime Behavior</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rajendran Swamidurai and Uma Kannan. <em>Impact of Pairing on Various Software Development Phases</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Edward Duffy, Brian Malloy and Stephen Schaub. <em>Exploiting the Clang AST for Analysis of C++ Applications</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Session 4:</strong> Computing Education (Chair: Dr. Wayne Summers)</td>
<td>KC 182</td>
</tr>
<tr>
<td></td>
<td>Anja Remshagen and Christine Rolka. <em>Contextualized Learning Tools: Animations and Robots</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hossain Shahriar and Sheetal Batchu. <em>Towards Mutation-based Testing</em></td>
<td></td>
</tr>
</tbody>
</table>
of Column-Oriented Database Queries

3:00 – 3:40  **Student Poster Session & Coffee Break (Chair: Dr. Meng Han)**  KC 300

3:50 – 5:10  **Regular Paper Sessions** (20 minutes each)
Session 5: Game Session (Chair: Dr. Jinghua Zhang)
Michael Weeks. *Creating a web-based, 2-D action game in JavaScript with HTML5*
Ken Hoganson. *Computational History: Applying Computing, Simulation, and Game Design to Explore Historic Events*
John Linford and Teng Moh. *Parallelized Rigid Body Dynamics*

Session 6: Big Data Session 2 (Chair: Dr. Ying Xie)
Jose Garrido. *A Programming Language for Implementing Computational Models*
Bryce Tyson, Rosemary Betros, Nathaniel Rollings, Jorge Figueroa-Cecc, Lisa Jones and Suzanne Matthews. *Using MapReduce to Compare Large Collections of Phylogenetic Trees*
Yunmei Lu, Yun Zhu, Meng Han, Jing (Selena) He and Yanqing Zhang. *A Survey of GPU Accelerated SVM*

Session 7: Security (Chair: Dr. Shouling Ji)
Mark Fioravanti and Liam Mayron. *Measuring the Effectiveness of Output Filtering Against SQL Injection Attacks*
Alireza Gorji and Mahdi Abadi. *Detecting Obfuscated JavaScript Malware Using Sequences of Internal Function Calls*
Hongmei Chi and Lawanda Warren. *Securing EHRs via CPMA Attribute-Based Encryption on Cloud Systems*

Session 8: Algorithms (Chair: Dr. Feng Gu)
John Wu and Letha Etzkorn. *An Approach For Finding Good Anchor Nodes in Ontologies*
Vineetha Bettaiah and Heggere Ranganath. *An Analysis of Time Series Representation Methods*
Afroza Ahmed and King Ip Lin. *Negative Sentence Generation by Using Semantic Heuristics*
Cuilan Wang and Timothy Newman. *New Metric for Evaluating the Accuracy of Marching Isosurfacing Algorithms*

6:00 – 7:15  **Banquet & Keynote:**
Keynote: Dr. Jennifer Priestley, Director Ph.D. in Data Science and Analytics, Kennesaw State university  KC 400
SATURDAY MARCH 29

<table>
<thead>
<tr>
<th>TIME</th>
<th>EVENT</th>
<th>ROOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:15 – 10:00</td>
<td>Breakfast</td>
<td>KC 400</td>
</tr>
<tr>
<td>10:00 – 11:20</td>
<td>Regular Paper Sessions (20 minutes each)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Session 9:  Networking (Chair: Dr. Alan Shaw)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rong Yang. <em>Adjusting Assortativity In Complex Networks</em></td>
<td>KC460</td>
</tr>
<tr>
<td></td>
<td>G. Cullum Smith, Jason O. Hallstrom, Sam Esswein, Gene W. Eidson and Chris Post. <em>Managing Metadata in Heterogeneous Sensor Networks</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Session 10:  Cloud Computing (Chair: Dr. Chunyu Ai)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hyuma Watanabe and Masatoshi Kawarasaki. <em>Impact of Data Transfer to Hadoop Job Performance –Architectural Analysis and Experiment</em></td>
<td>KC 462</td>
</tr>
<tr>
<td></td>
<td>Jeffrey Robinson, Brandon Dixon and Jeffrey Galloway. <em>Montgomery Multiplication using CUDA</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Session 11:  Graph Processing (Chair: Dr. Ben Setzer)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>David Robinson and Jianxia Xue. <em>Sparse Local Binary Pattern Histograms For Face Recognition With Limited Training Samples</em></td>
<td>KC 174</td>
</tr>
<tr>
<td></td>
<td>Zhaohua Yi and Jianxia Xue. <strong>Improving HOG Descriptor Accuracy Using Non-linear Scale Space in People Detection</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Liam Mayron and Mohammad Alshehri. <em>Evaluating the use models of visual attention to predict graphical passwords</em></td>
<td></td>
</tr>
<tr>
<td>11:20 – 12:20</td>
<td>Game Showcase and Exposition &amp; Coffee Break</td>
<td>KC 300</td>
</tr>
<tr>
<td>12:20 – 1:20</td>
<td>Lunch:  Keynote Dr Tiffany Barnes, Game Design &amp; Development</td>
<td>KC 400</td>
</tr>
<tr>
<td>1:20 – 2:50</td>
<td>Tutorial:  Using game-like instructional modules to enhance student learning in lower level core computer science courses, Jinghua Zhang, Emanuel Smith, Mustafa Atay, Rebecca Caldwell and Elva Jone.</td>
<td>KC 460</td>
</tr>
<tr>
<td></td>
<td>Tutorial:  Raspberry Pi Attacks!  Security and small platforms.  Richard Austin.</td>
<td>KC 174</td>
</tr>
<tr>
<td>3:00 – 4:30</td>
<td>Tutorial:  Introducing the new CS Principles Course in K-12 and Higher Ed, Jeff Gray, Deepa Muralidhar, Lien Diaz and Tiffany Barnes.</td>
<td>KC 462</td>
</tr>
<tr>
<td>3:20 – 3:40</td>
<td>Paper Awards, Game Awards</td>
<td></td>
</tr>
</tbody>
</table>
Local Activities:

Kennesaw State is conveniently located less than two minutes off Interstate 75 offering a variety of historic and recreational sites and nearby attractions:

Kennesaw Mountain Battlefield Park
900 Kennesaw Mountain Dr.
Kennesaw GA 30152
770-427-4686

Southern Museum of Civil War & Locomotive History
2829 Cherokee Street NW
Kennesaw, GA 30144
770 427-2117

Marietta Museum of History
1 Depot Street, Suite 200
Marietta, Ga 30060
770 794-5710

Marietta National Military Cemetery
500 Washington Avenue
Marietta, GA 30060
866-236-8159

Red Top Mountain State Park
50 Lodge Rd SE
Cartersville, GA 30121
770 975-0055

Marietta Gone with the Wind Museum: Scarlett on the Square
18 Whitlock Avenue
Marietta, Ga 30064
770 794-5576

Tellus Museum
100 Tellus Drive
Cartersville, Ga 30120
770 606-5700

Booth Western Art Museum
501 Museum Drive
Cartersville, GA 30120
770 387-1300

Etowah Indian Mounds State Historic Site
813 Indian Mounds Rd.
Cartersville, GA 30120
770 387-3747

Terminus Wake Park
130 Old Allatoona Rd
Cartersville, GA 30121
470 315-0155

Allatoona Lake Recreational Facilities and Visitor’s Center
1138 State Route 20 Spur, SE
Cartersville, GA 30121

Georgia Aquarium
225 Baker St.
Atlanta, GA 30313
404 581-4000

World of Coca Cola
121 Baker Street NW
Atlanta, GA 30313
404 676-5151

Zoo Atlanta
800 Cherokee Avenue SE
Atlanta, Ga
404 624-5600

Underground Atlanta
50 Upper Alabama Street, SW
Atlanta, Ga 30303
404 523-2311

Georgia Dome
One Georgia Dome Drive
Atlanta, Ga 30313
855-514-5628

CNN Center
190 Marietta Street, NW
Atlanta, Ga 30303
404 827-2300

Centennial Olympic Park
265 Park Avenue West NW
Atlanta, GA 30313
404 222-7275

Stone Mountain
1000 Robert E. Lee Blvd.
Stone Mountain, GA 30083
770 498-5690
ACMSE 2014 Committee Members:

Chair: Ken Hoganson, KSU
Co-Chair: Mario Guimaraes, Zayed University
Program Chair: Selena He, KSU
Proceedings Chair: Ben Setzer, KSU
Themed Track Chair: Ying Xie, KSU
WebMaster: Kirk Inman, KSU
Themed Track Chair: Jinghua Zhang, Winston-Salem State University
Treasurer: Dick Gayler, KSU
Game Exposition: Jon Preston, SPSU
Local Arrangements Chairs: Sarah North & Wanda Sexton, KSU
Committee: Hossain Shahrar, Pam Needham, Wanda Sexton

ACMSE Steering Committee:

Ken Hoganson
Mario Guimaraes
Dean Hendrix
Ashraf Saad
Randy Smith