Vita

Loren Klingman

Education
PhD, Computer Science, Expected: 2020, Georgia Institute of Technology, Atlanta, GA
MS, Computer Science, May 2014, Clemson University, Clemson, SC
      Thesis: *Corl8: A System for Analyzing Diagnostic Measures in Wireless Sensor Networks*
BS, Computer Science, May 2011, Clemson University, Clemson, SC
      Graduated with General and Departmental Honors

Honors and Awards
Best Undergraduate Project, School of Computing, Clemson University, April 2010
President's List, Clemson University, Fall 2007, Fall 2008 – Spring 2011

Association Memberships
Upsilon Pi Epsilon, Clemson University, Inducted in 2009

Professional Experience
The Southern Baptist Theological Seminary, Louisville, KY   Summer 2014 – Summer 2016
Manager of Data and Analytics
    Provided accurate and reliable data analysis to support management decision-making
    Managed data and reporting, help find incorrect records and merge spouses
    Implemented continuous delivery and software validation tools
    Worked with EC2 and Elastic Search for stable content delivery from the cloud
International Company, Worked in Thailand   Summer 2011 – Summer 2013
Web Programmer
    Implemented new websites to increase usability on various devices
    Helped to secure websites to prevent hacking
    Worked with users around the world to ensure software met needs
TigerPaw Productions, Clemson University, Clemson, SC   Fall 2009 – Spring 2011
Director of Technology Development
    Created and managed an event and employee management system
    Managed up to two other programmers on the project
Klingman Design, LLC, Greer, SC   Summer 2006 – Summer 2014
Owner
    Developed custom content management systems in PHP and MySQL
    Consulted with various companies and individuals on website design and programming

Research
Corl8: A System for Analyzing Diagnostic Measures in Wireless Sensor Networks (2013-2014)
Researchers are deploying wireless sensor networks more than ever before. These networks comprise a large number of sensors integrated with small, low-power, wireless transceivers. They are often deployed in harsh, volatile locations, which increases their rate of packet loss and device failure. Using diagnostic metrics to debug wireless sensor networks allows for transmitting only a small amount of extra information, while still enabling performance analyses to be performed.

We presented *Corl8*, a system for analyzing diagnostic traces in wireless sensor networks. Our approach relied on diagnostic data that is periodically transmitted to a network sink as part of the standard sensor payload. Corl8 provides an interactive environment for exploring correlated changes in diagnostic measures within an individual node or on a batch basis to flag interesting correlations. The system's flexibility makes it applicable for use in any wireless sensor network that transmits diagnostic information.

The analysis methods are user-configurable, but we suggested settings and analyzed their performance with data from five real-world deployments.

Electronic Health Records: A Teaching Tool (2008-2011)
We explored how familiar environments could be used to teach new skills which could then be applied in an unfamiliar environment. For this project, the team chose to look at Electronic Health Record (EHR) software because few solutions currently exist for teaching students to use this complex software. The government mandated as a part of the American Recovery & Reinvestment Act that EHR software be used for all people by 2014. The team created software, which looks similar to the familiar social networking environment of Facebook but contains the major features nurses would use in commercial EHR programs. Our goal was to provide an educational EHR system in a familiar environment that acts as a stepping-stone for the students to facilitate the transition from mere classroom knowledge about EHRs to actual use of a commercial EHR system in a hospital or doctor's office. The team conducted usability testing on nursing faculty and in the nursing student classrooms.

Sharing a Virtual Machine Image Catalogue (2010-2011)
Virtual machines can be used to assist in research requiring large computing resources in a specific environment. We investigated better ways to share and endorse virtual machine images so that computing facility owners can know that specific images are safe to run in their facility.

Effectiveness of Graphic Design in Packaging (2009)
In this study, we examined individual responses to graphics used in product packaging. Many companies invest large amounts of money in the graphic design of their brand, but have no way to measure for certain if a design will interest buyers. This study investigated whether there are any patterns or preferences in how individuals look at packaged products. With the data gathered, we sought to better understand what designs interest consumers, which may aid graphic designers of packaged products. I completed the project setup on the eye tracking hardware to collect the appropriate eye tracking information and performed the data processing to extract the results from the eye tracking output.

Publications and Papers

Klingman, Loren. *Corl8: A System for Analyzing Diagnostic Measures in Wireless Sensor Networks*. In *23rd International Conference on Software Engineering and Data Engineering, SEDE 2014*. International Society of Computers and Their Applications (ISCA), 2014. 75-81 [acceptance rate 60%].

Klingman, Loren. *Corl8: A System for Analyzing Diagnostic Measures in Wireless Sensor Networks*. Master's Thesis. Clemson University, 2014. http://tigerprints.clemson.edu/all_theses/1989/.

Klingman, Loren. *Distributing and Trusting Images between Cloud Providers*. Thesis. Clemson University, 2011. http://klingman.us/presentations/honorsthesis.pdf.

Klingman, Loren. *Electronic Health Records: A Teaching Tool*. In *Proceedings of the 5th Annual ACC Meeting of the Minds Conference*. 17 slides. 2010. http://loren.klingman.us/presentations/ehr20100417.pptx

Other Presentations

Graduate Research Poster Forum – Clemson University - Corl8: A System for Analyzing Diagnostic Measures in Wireless Sensor Networks (Poster) (April 4, 2014)

Teaching in Technology Seminar – Clemson University (Sandbox Classroom) – Teaching Students Electronic Health Records (Full Presentation) (December 15, 2009)

Klingman, Loren. *Using social networking to teach new software*. In *Proceedings of the 47th Annual Southeast Regional Conference* (ACM-SE 47). ACM, New York, NY, USA, Article 50, 2 pages, 2010. DOI=10.1145/1566445.1566514 http://doi.acm.org/10.1145/1566445.1566514

CI Poster Forum – Clemson University (Hendrix Student Center) – An Innovative Electronic Health Record for Teaching Undergraduate Nursing Students (Poster Presentation) (April 10, 2009)

References

Dr. Jason Hallstrom, Master's Advisor
Dr. Brian Malloy
Dr. Nancy Meehan