

Karl Gyllstrom

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<http://www.cs.unc.edu/~karl>
see website
see website

Work Experience

Katholic University of Leuven, *Post-doctoral researcher*, November 2009 - Present
Helping to design and implement an open source search engine for children. Research spans wide range from usability to content acquisition. Collaborating with several IR institutions including universities of Glasgow, Strathclyde, Twente, and Delft.

Google, *Research intern*, October 2008 - June 2009

Researched algorithms for automated detection of web research tasks among search users in order to determine when to provide more advanced organization features via the user interface.

Technologies used: Python, C++, AJAX; Latent dirichlet allocation

University of North Carolina, Chapel Hill, *Researcher*, 2008 - 2009

Researched algorithms to automatically generate recommended search queries to users. Implemented web-based search system using recommended queries, and deployed large scale study involving more than 100 users.

Technologies used: Python, C++; implemented search system using Lemur/Indri toolkit, including extending existing code within the codebase; web-server front-end implemented using Django web framework

HP Labs, *Research intern*, 2007

Designed and implemented the SeeTrieve system, a personal document retrieval tool which uses activity as a search attribute; traces users' document interaction via both the file system and user interface. Designed and implemented user study involving 16 participants.

Technologies used: C++, Python, C#; overriding Windows kernel level functions using detours DLL-swapper; tracing Mac OS X kernel functions using dtrace; user interface event tracing using accessibility libraries on Windows and Mac OS X; document retrieval by integrating with both Lemur and Google Desktop API; BerkeleyDB, SQLite

HP Labs, *Research intern*, 2006

Designed and implemented the Confluence system, an extension to an existing search tool that identifies document similarity through task commonality; traces users' document interaction via both the file system and user interface. Designed and implemented long term user study (3-6 months) involving 6 participants.

Technologies used: C++, Java; driver-layer kernel code; UI-layer event tracing through accessibility libraries on Windows

University of North Carolina, Chapel Hill, *Assistant Researcher*, 2003 - 2006

Lead engineer on the FaceTop system, a system supporting remote collaboration via a video-conferencing system combined with a shared desktop workspace. Project featured in Wired, Slashdot, and a number of conference publications.

Technologies used: Objective-C, C++; real-time video capture, encoding and streaming; networking; real-time object tracking through computer vision, real-time image effects processing; Mac OS X technologies such as CoreVideo, Quartz

IBM, *Software engineer intern*, 2003

Developer on BPEL-Lite project, enabling suspension and resumption of Java processes in WebSphere. Presented work to IBM CEO Sam Palmisano.

Technologies used: Java; Websphere

Mentisys, *Software engineer intern*, 2001

Developed testing software for large, distributed, enterprise Java application.

Technologies used: Java; EJB

Teaching Experience

University of North Carolina, Chapel Hill, *Instructor*, 2009

Designed and taught course on introductory programming in Java for a class of 48 undergraduate students.

University of North Carolina, Chapel Hill, *Teaching assistant*, 2002

Graded and designed assignments for a introductory computing class of over 50 students.

Education

University of North Carolina, Chapel Hill, NC

Ph.D. in Computer Science, October 2009

M.S. in Computer Science, 2005

Thesis: Activity-based task context in personal information management

Advisor: David Stotts

University of Georgia, Athens, GA

B.S. in Computer Science, 2002, *Phi Beta Kappa*.

Selected publications

Karl Gyllstrom, Marie-Francine Moens. *Wisdom of the Ages: Toward Delivering the Children's Web with the Link-based AgeRank Algorithm*. To appear in CIKM, 2010.

Karl Gyllstrom. *Passages through time: chronicling users' information interaction history by recording when and what they read*. In IUI, 2009. ACM Press.

Karl Gyllstrom, Craig Soules, Alistair Veitch. *Activity Put in Context: Identifying implicit task context within the user's document interaction*. In IUI, 2008. ACM Press.

Karl Gyllstrom, Craig Soules. *Seeing is retrieving: Building information context from what the user sees*. In IUI, 2008. ACM Press.

Patents

Methods for Merging Text Snippets for Context Classification.

Karl Gyllstrom, Craig Soules. Pending.

Methods for Pairing Text Snippets to File Activity.

Karl Gyllstrom, Craig Soules. Pending.

Using Interface Events to Group Files.

Karl Gyllstrom, Alistair Veitch, Henri J. Suermondt, Pankaj Mehra.

Skills

Programming Languages (Years Experience)

Java (10), C++(12), Objective-C (7), Python (8), Javascript (10, intermittent)

Tools and Libraries:

Boost, Cocoa, Java standard library, STL, AJAX, Lemur/Indri, Google Desktop API, GData, FaceBook API, Zoho API, django web framework, SQLite, BerkeleyDB, MySQL, ZFS, Core video/video encoding, git, svn, svk

Linux/Unix (10), Mac OS X (8), Windows (10+)