Miryung Kim

CONTACT
INFORMATION

Assistant Professor
Electrical and Computer Engineering
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RESEARCH
INTERESTS

I am interested in **software engineering**, more specifically in **software evolution**. My forte is in gathering insights into software evolution through **user studies** and **mining software repositories**. Based on these insights, I build new **software engineering tools and infrastructure** and evaluate them to show how these solutions can improve current software development practices.

EDUCATION

University of Washington, Seattle, WA, USA
Ph.D., Computer Science & Engineering, 2008
Thesis: *Analyzing and Inferring the Structure of Code Changes*
Advisor: Prof. David Notkin

M.S., Computer Science & Engineering, 2003
Thesis: *An Ethnographic Study of Copy and Paste Programming Practices*
Advisor: Prof. David Notkin

Korea Advanced Institute of Science and Technology, Taejon, Korea
B.S., Computer Science, 2001 (Graduation Rank: No 1 among all science and engineering students)

RESEARCH
EXPERIENCE

Dissertation

Discovering and Representing Logical Structure in Code Change
I invented a novel rule-based program delta representation that concisely captures systematic changes to a program's dependency structure and built a program differencing tool using my own rule-inference algorithm.

Automatic Inference of Likely Structural Changes for Matching Across Program Versions
I built a code matching tool that determines method-level matches between two program versions by inferring API-level structural changes [ICSE '07].

An Empirical Study of Code Clone Genealogies
I studied evolution of code clones in open source projects by developing a tool that automatically extracts the history of code clones from a source code repository [ESEC/FSE '05].

An Ethnographic Study of Copy and Paste Programming Practices
I conducted an ethnographic study of copy and paste programming practices by unobtrusively observing programmers using an instrumented IDE and replaying edit logs with our custom-built replayer [ISESE '04].

Other Projects

Visualization and Exploration of Code Clones in Context
I developed a visualization tool for code clone history in collaboration with Eytan Adar based on his GUESS system [ICSE '07 Formal Demo].

TA-RE: An Exchange Language Design for Mining Software Repositories
As a part of a working group effort, I designed an exchange language for mining software repositories [MSR '06].

An Evaluation of Design Snippets

I designed and conducted a user study to evaluate the *Design Snippets* tool with Vibha Sazawal [IWPSE '04].

Planlet: Supporting Plan Aware Ubicomp Applications

I designed a representation and a tool for building plan-aware ubiquitous computing applications with Gary Look and Joao Sousa.

WORK
EXPERIENCE

Research Assistant, 2003 - present
University of Washington, Seattle, WA

Teaching Assistant, 2003 - 2004
University of Washington, Seattle, WA
I worked as a teaching assistant for introductory computer programming (CSE 142) and graduate software engineering (CSE 503) classes. I also taught several lectures on aspect oriented programming and mining software repositories in CSE 503.

Research Intern, Summer, 2003
IBM T.J. Watson Research Center, Hawthorn, NY
Mentors: Tessa Lau and Lawrence Bergman
I conducted an ethnographic study of copy and paste programming practices.

Software Developer, 2001
Motorola Korea Design Center, Seoul, Korea
I collaboratively developed a user interaction service layer in product-line based cell phone software.

HONORS AND
AWARDS

Fellowship for Graduate Studies: The Korea Foundation for Advanced Studies, 2001

Secretary of Ministry of Science and Technology Award: Awarded to the top undergraduate from the Korean Ministry of Science and Technology, 2001

Scholarship for Honored Undergraduate Students: The Korea Foundation for Advanced Studies, 1999

Grace Hopper Celebration of Women in Computing Conference Scholarship: Anita Borg Institute, 2007

SELECTED
PUBLICATIONS

Kim, M. and Notkin, D. *Discovering and Representing Systematic Code Changes.* 10 pages, September 2008 (In preparation for submission).

Kim, M., Beall, J., and Notkin, D. *Discovering and Representing Logical Structure in Code Changes.* UW-CSE-TR 070901, 10 pages, September 2007

Kim, M., Notkin, D., and Grossman, D. *Automatic Inference of Structural Changes for Matching Across Program Versions.* The 29th International Conference on Software Engineering (ICSE 2007), pages 333-343, May 2007, IEEE Computer Society.

Kim, M. and Notkin, D. *Program Element Matching for Multi-Version Program Analyses.* The Third International Workshop on Mining Software Repositories, co-located with International Conference on Software Engineering, pages 58-64, May 2006, ACM.

Kim, M., Sazawal, V., Notkin, D., and Murphy, G. C. *An Empirical Study of Code Clone Genealogies.* The 10th European Software Engineering Conference held jointly with the 13th ACM SIGSOFT International Symposium on Foundations of Software Engineering (ESEC/FSE 2005),

pages 187-196, September 2005, ACM.
Nominated for an ACM SIGSOFT Distinguished Paper Award and Invited for Submission to ACM Transactions on Software Engineering and Methodology.

Sazawal, V., **Kim, M.**, and Notkin D. *A Study of Evolution in the Presence of Source-Derived Partial Design Representations.* The Seventh International Workshop on the Principles of Software Evolution (IWPSE 2004), pages 21-30, September 2004, IEEE Computer Society.

Kim, M., Bergman, L., Lau, T. A., and Notkin D. *An Ethnographic Study of Copy and Paste Programming Practices in OOPL.* International Symposium on Empirical Software Engineering (ISESE 2004), pages 83-92, August 2004, IEEE Computer Society.

OTHER
PUBLICATIONS

Kim, M. *Understanding and Aiding Code Evolution by Inferring Change Patterns.* Doctoral Symposium Poster, The 29th International Conference on Software Engineering, pages 101-102, May 2007, IEEE Computer Society.

Adar, E. and **Kim, M.** *SoftGUESS: Visualization and Exploration of Code Clones in Context.* Formal Demo, The 29th International Conference on Software Engineering, pages 762-766, May 2007, IEEE Computer Society.

Kim, S., Zimmermann, T., **Kim, M.**, Hassan, A., Mockus, A., Girba, T., Pingzer M., Whitehead E. J. Jr., Zeller, A. *TA-RE: An exchange language for mining software repositories.* The Third International Workshop on Mining Software Repositories, co-located with International Conference on Software Engineering, pages 22-25, May 2006, ACM.

Kim, M. and Notkin, D. *Using a Clone Genealogy Extractor for Understanding and Supporting Evolution of Code Clones.* The Second International Workshop on Mining Software Repositories, co-located with International Conference on Software Engineering, pages 1-5, May 2005, ACM.

Kim, M., Sazawal, V., and Notkin D. *Supporting Uses of Editing Process Patterns.* The Workshop on Behavior-based User Interface Customization, International Conference on Intelligent User Interface, January 2004.

Look, G., Sousa J., and **Kim, M.** *Planlet: Supporting Plan-based User Assistance.* Intel Research, IRS-TR-03-005 2003.

Scholtz, J., Arnstein, L., **Kim, M.**, Kindberg, T., and Consolvo S. *User-Centered Evaluations of Ubicomp Applications.* Intel Research, IRS-TR-02-006 2002.

INVITED TALKS

Discovering and Representing Logical Structure in Code Changes, Dagstuhl Seminar 07491 on Mining Programs and Processes, Schloss Dagstuhl, December 2007.

Automatic Inference of Likely Changes for Matching Across Program Versions, University of Saarland, Germany, University of Zurich, Switzerland, University of Bremen, Germany, University of Lugano, Switzerland, November 2006.

Multi-Version Program Analysis, Department of Computer Science Engineering, Pohang University of Science and Technology, Korea, June 2006.

An Empirical Study of Code Clone Genealogies, IBM T.J. Watson Research Center, September 2005.

A Study of Code Clone Genealogies, Dagstuhl Seminar 05261 on Multi-Version Program Analysis, Schloss Dagstuhl, June 2005.

Evolution of Code Clones in Open Source Projects, Department of Electrical and Computer Engineering, University of British Columbia, Canada, January 2005.

An Ethnographic Study of Copy and Paste Programming Practices, Department of Computer Science, University of British Columbia, Canada, March 2004.

Supporting Uses of Editing Process Patterns, Department of Computer Science, University of Victoria, Canada, March 2004.

SERVICE

Program Committee Member, 6th Working Conference on Mining Software Repositories (MSR 2009).
Program Committee Member, International Workshop on Recommendation Systems for Software Engineering (RSSE 2008).
Reviewer, IEEE Transactions on Software Engineering.
Reviewer, IEEE Software.
Reviewer, ACM Transactions on Software Engineering and Methodology.
Reviewer, International Conference on Software Engineering 2008.
Reviewer, Journal of Software Maintenance and Evolution: Research and Practice.

Panelist, *Inspirations* Program at International Symposium on Foundations on Software Engineering, 2006: A program for prospective students interested in software engineering research.

Engineering Open House Coordinator and Volunteer, 2006.

Volunteer Mentor, *Making Connections* Program, 2003 - 2005: A mentoring program for female high school students from disadvantaged backgrounds.

Graduate Admissions Committee, 2004.

Prospective Student Committee, 2003.

Graduate Curriculum Committee, 2003.

REFERENCES

David Notkin (Thesis Advisor)
Bradley Chair and Professor
Department of Computer Science & Engineering
University of Washington
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Dan Grossman
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Gail C. Murphy
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Department of Computer Science
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