

## Miryung Kim

University of California, Los Angeles

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Engineering VI 474, UCLA, Los Angeles, CA 90095

I am an associate professor in the Department of Computer Science at the University of California, Los Angeles. My research focuses on software engineering, specifically on software evolution. I develop **software analysis algorithms** and **development tools** to improve programmer productivity and program correctness. I also conduct **user studies** with professional software engineers and carry out **quantitative, statistical analysis** of open source project data to allow data-driven decisions for designing novel software engineering tools.

These days, my research focuses on **software engineering support for big data systems** and understanding how **professional data scientists** work in software development organizations. In particular, our focus is to improve productivity and efficiency for leveraging big data intelligence.

### EDUCATION:

University of Washington	Computer Science and Engineering	PhD	December 2008
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*Advisor: David Notkin*

*Dissertation Title: Analyzing and Inferring the Structure of Code Changes*

University of Washington	Computer Science and Engineering	MS	August 2003
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*Advisor: David Notkin*

*Thesis: An Ethnographic Study of Copy and Paste Programming Practices*

Korea Advanced Institute of Science and Technology (KAIST)	Computer Science	BS	February 2001
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**Graduation Rank: No 1 among all science and engineering students**

### CURRENT AND PREVIOUS ACADEMIC POSITIONS:

University of California, Los Angeles	Associate Professor	September 2014—Current
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University of Texas at Austin	Assistant Professor	January 2009 – August 2014
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Korea Advanced Institute of Science and Technology	Visiting Researcher	October 2008 to December 2008
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University of Washington	Graduate Research Assistant	October 2001 to August 2008
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### OTHER PROFESSIONAL EXPERIENCE:

Microsoft Research	Visiting Researcher	Summer 2014
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Microsoft Research	Visiting Researcher	Summer 2011
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IBM TJ Watson Research	Graduate Research Intern	Summer 2003
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Motorola Corporation	Software Engineer	January 2001 to August 2001
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### HONORS AND AWARDS:

**Invited Speaker at the Distinguished Lecture Series** at the University of California, Irvine, 2018

**Faculty of the Year Award**, given by the UCLA Chapter of National Residence Hall Honorary, 2017—a student nominated award for the best faculty-in-residence

**ACM Senior Member**, 2016

**Okawa Research Grant Award**, 2015

**Google Research Award**, 2014

**Invited Speaker at the University of Virginia CS Top Gun Series**, 2013 –*recognizes faculty on a trajectory to be the research leaders of the coming decades*

**Nominated for ACM SIGSOFT Distinguished Paper Award** & Selected for Expedited Journal Publication, The International Conference on Automated Software Engineering, 2013.

International Conference on Mining Software Repositories 2012 Paper, Selected for Expedited Journal Publication

**NSF CAREER Award**, 2011

International Conference on Software Maintenance 2011 Paper, Selected for Expedited Journal Publication

**Microsoft Software Engineering Innovation Foundation Award**, 2011

**ACM SIGSOFT Distinguished Paper Award**, The 25th International Conference on Automated Software Engineering, 2010 & Selected for Expedited Journal Publication

**Nomination for ACM SIGSOFT Distinguished Paper Award**, The 33<sup>rd</sup> International Conference on Software Engineering, 2011

**IBM Jazz Innovation Award**, 2009

**Nominated for ACM SIGSOFT Distinguished Paper Award**, International Symposium on Foundations of Software Engineering, 2005

**Korean Ministry of Education, Science and Technology Award**, the highest honor given to an undergraduate student in Korea, 2001

**Summa Cum Laude**, Korea Advanced Institute of Science and Technology (KAIST) in 2001.

**Korea Foundation of Advanced Studies Graduate Fellowship**, 2001 to 2006

Korea Foundation of Advanced Studies Scholarship for Honor Undergraduate Students, 1999

## **PUBLICATIONS:** <sup>1</sup>

### **2018**

- P1. **Zhang, T.**, Upadhyaya, G., **Reinhardt, A.**, Rajan H and **Kim, M.**, "Are Code Examples on an Online Q&A Forum Reliable? A Study of API Misuse on Stack Overflow", Proceedings of 40th IEEE/ACM International Conference on Software Engineering, ACM, pages 1-12 (**ICSE 2018**)
- P2. Glassman\* E.L., **Zhang\* T.**, Hartmann, B., **Kim, M.**, "Visualizing API Usage Examples at Scale," ACM 2018 CHI Conference on Human Factors in Computing Systems, ACM, pages 1-12 \* *means equal first authors.* (**CHI 2018**)
- P3. **Kim, M.**, Zimmermann, T., DeLine, R., and Begel A., "Data Scientists in Software Teams: State of the Art and Challenges," IEEE Transactions on Software Engineering, IEEE, Preprint:1 - 17 (2018) url: <http://ieeexplore.ieee.org/document/8046093> (**TSE**)

### **2017**

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<sup>1</sup> Authors marked in **bold** are current, former and visiting students in my group that I advised. My name is marked in bold as well. Before moving to UCLA in 2014, I put my name first among senior authors, if I am the lead, corresponding author. For the publications that were first submitted after moving to UCLA, I put my name as the last author, if I am the lead contributor.

- P4. **Zhang, T., Kim, M.**, “Automated Transplantation and Differential Testing for Clones,” ICSE' 17: Proceedings of 39th IEEE/ACM International Conference on Software Engineering, pages 784-795, (**ICSE 2017**) 16% acceptance rate.
- P5. **Gulzar, M. A.**, Interlandi, M., **Han, X.**, Li, M., Condie, T., **Kim, M.**, “Automated Debugging in Data-Intensive Scalable Computing,” Proceedings of the 2017 Symposium on Cloud Computing, ACM, 520-534 (September 2017) url: <https://dl.acm.org/citation.cfm?id=3131624> (**SoCC 2017**)
- P6. **Gulzar, M. A.**, Interlandi, M., Condie, T., **Kim, M.**, “Debugging Big Data Analytics in Spark with BigDebug,” SIGMOD' 17: Proceedings of 2017 ACM SIGMOD/PODS Conference, Demonstration Track, 4 pages (**SIGMOD 2017 Demo**)
- P7. Interlandi, M., Ekmekji, A., Shah, K., **Gulzar, M. A.**, Tetali S. D., **Kim, M.**, Millstein, T., Condie, T. “Adding Data Provenance Support to Apache Spark”, The VLDB Journal, Springer Berlin Heidelberg, 2017(Special Issue):1 - 21 (2017) url: <https://link.springer.com/article/10.1007/s00778-017-0474-5> (**VLDB Journal**)
- P8. **Alves, L., Song, M.**, Massoni, T., Machado, P., **Kim, M.** “Refactoring Inspection Support for Manual Refactoring Edits,” IEEE Transactions on Software Engineering, IEEE, Preprint:1 - 20 (March 2017) url: <http://ieeexplore.ieee.org/document/7874212/> (**TSE**)
- 2016**
- P9. **Gulzar M., A.**, Interlandi, M., Yoo, S., Tetali, S.D., Condie, T., Millstein, T., **Kim, M.**, “BigDebug: Debugging Primitives for Interactive Big Data Processing in Spark,” ICSE' 16: Proceedings of 38th IEEE/ACM International Conference on Software Engineering, pages 784-795, (**ICSE 2016**) 19% acceptance rate.
- P10. **Kim, M.**, Zimmermann T., DeLine, R., Begel, A.,” The Emerging Role of Data Scientists on Software Development Teams,” ICSE' 16: Proceedings of 38th IEEE/ACM International Conference on Software Engineering, pages 96-107 (**ICSE 2016**) 19 % acceptance rate.
- P11. Interlandi, M., Shah, K., Tetali, S., **Gulzar, M., Yoo S., Kim, M.**, Millstein T., Condie, T. “Titian: Data Provenance Support in Spark,” PVLDB Volume 9 Issue 3: Proceedings of The 42nd Conference On Very Large Data Bases, pages 216-227 (**VLDB 2016**).
- P12. Tetali, S., Interlandi, **M., Gulzar M.**, Noor, J., Condie, T., **Kim, M.**, Millstein, T., “Optimizing Interactive Development of Data-Intensive Applications,” ACM Symposium on Cloud Computing 2016. (**SoCC 2016**) 12 pages
- P13. **Alves, E.**, Machado, P., Massoni, T., **Kim, M.**, “Prioritizing Test Cases for Early Detection of Refactoring Faults,” Journal of Software Testing, Verification, and Reliability, Preprint DOI: 10.1002/stvr.1603 (Date of Publication: 21 March 2016), Volume 26, Issue 5, pages 402–426, August 2016
- P14. Zheng, X., Julien, C., **Kim, M.**, Khurshid, S., “Perceptions on the State of the Art in Verification and Validation in Cyber-Physical Systems,” IEEE Systems Journal, Preprint DOI: 10.1109/JSYST.2015.2496293 (Date of Publication: 20 November 2015), 14 pages
- P15. **Park, J., Kim, M.**, Bae, D.H., “An Empirical Study of Supplementary Patches in Open Source

Projects,” Journal of Empirical Software Engineering, 22(1):436 - 473 url: Preprint DOI: 10.1007/s10664-016-9432-x

- P16. **Gulzar, M.A., Han X.**, Interlandi, M., **Mardani, S.**, Tetali, S., Condie, T., Millstein, T., **Kim, M.**, “Interactive Debugging for Big Data Analytics,” The 8th USENIX Workshop on Hot Topics in Cloud Computing, 5 pages, 30% acceptance rate.
- P17. **Gulzar, M.A.**, Interlandi, M., Condie, T., and **Kim, M.**, “BigDebug: Interactive Debugger for Big Data Analytics in Apache Spark,” The 24th ACM SIGSOFT International Symposium on the Foundations of Software Engineering, Demonstration Track, 4 pages. (**FSE Demo 2016**)
- P18. Weimer, W., Forrest, S., **Kim, M.**, Le Goues, C., Hurley, P., “Trusted Software Repair for System Resiliency,” The 46th IEEE/IFIP International Conference on Dependable Systems and Networks, Industry Track, 4 pages (Apr 2016)
- P19. **Kim, M.**, “Five Steps for Success: How to Deploy Data Science in Your Organizations,” Book Chapter on Perspectives on Data Science for Software Engineering, 1st Edition, Editors: Menzies, T., Williams, L., Zimmermann, T. (Date of Publication: 13 July 2016).

#### **2015**

- P20. **Meng, N., Hua, L, Kim, M,** McKineley, K. “Does Automated Refactoring Obviate Systematic Editing?” IEEE/ACM 37th IEEE International Conference on Software Engineering (**ICSE 2015**) 18% acceptance rate
- P21. **Zhang T, Song M, Pinedo J, Kim, M.** “Interactive Code Review for Systematic Changes,” 2015 IEEE/ACM 37th IEEE International Conference on Software Engineering (**ICSE 2015**) 18% acceptance rate.

#### **2014**

- P22. **Zhang, T., Song, M., Kim, M.** “An Interactive Code Review Tool for Searching and Inspecting Systematic Changes,” The 22<sup>nd</sup> ACM SIGSOFT International Symposium on Foundations of Software Engineering, Research Demonstration Track, pages 755-758 (**FSE 2014 Demo**)
- P23. **Alves, E., Song, M., Kim, M.** “RefDistiller: A Refactoring Aware Code Review Tool for Inspecting Manual Refactoring Edits,” The 22<sup>nd</sup> ACM SIGSOFT International Symposium on Foundations of Software Engineering, Research Demonstration Track, pages 751-754 (**FSE 2014 Demo**)
- P24. **Park, J., Kim, M.,** Bae D.H., “An empirical study on reducing omission errors in practice,” The 29<sup>th</sup> IEEE/ACM International Conference on Automated Software Engineering, New Ideas and Emerging Research Track, pages 121-126 (**ASE 2014**).
- P25. **Kim, M.,** Zimmermann, T., and Nagappan, N. “An Empirical Study of Refactoring Benefits and Challenges at Microsoft,” IEEE Transactions on Software Engineering, Volume 40 No. 7: 633-649 (2014) (**TSE 2014**, March 2014).
- P26. **Jacobellis, J., Meng, N., Kim, M.,** “Cookbook: In Situ Code Completion Using Edit Recipes Learned From Examples,” The 36th IEEE/ACM International Conference on Software Engineering, Formal Research Demonstration Track (**ICSE 2014 Demo**), Hyderabad, India, 4

pages, June 2014 (36% acceptance rate)

## 2013

- P27. **Meng, N., Kim, M.,** McKinley, K. "LASE: Locating and Applying Systematic Edits by Learning from Examples," The 35th IEEE/ACM International Conference on Software Engineering, (**ICSE 2013**), San Francisco, CA, pages 502-511, May 2013. (18% acceptance rate).
- P28. **Ray, B., Kim, M.,** Person, S., Rungta, N. "Detecting and Characterizing Semantic Inconsistencies in Ported Code," The 28<sup>th</sup> IEEE/ACM International Conference on Automated Software Engineering, (**ASE 2013**), Palo Alto, CA, 10 pages, November, 2013. (23% acceptance rate). **Invited to the Special Issue of Journal of Automated Software Engineering**
- P29. **Kim, M.,** Notkin, D., Grossman, D., **Wilson, G.,** "Identifying and Summarizing Systematic Code Changes via Rule Inference," IEEE Transactions on Software Engineering (**TSE 2013**), Volume 39, Number 1, pages 45-62, January 2013.
- P30. **McDonnell, T., Ray, B., Kim, M.** "An Empirical Study of API Stability and Adoption in the Android Ecosystem," The 29th IEEE International Conference on Software Maintenance, Eindhoven, the Netherlands, 10 pages, September, 2013. (22% acceptance rate). (**ICSM 2013**)
- P31. **Jabobellis, J., Meng, N., Kim, M.,** "LASE: An Example-based Program Transformation Tool for Locating and Applying Systematic Edits," The 35th IEEE/ACM International Conference on Software Engineering, Formal Research Demonstration Track (**ICSE 2013 Demo**), San Francisco, CA, pages 1319-1322, May 2013.
- P32. **Kim, M., Meng, N.,** "Recommending Program Transformations to Automate Repetitive Software Changes," Book Chapter on Recommendation Systems on Software Engineering. Editors: Martin Robillard, Walid Maalej, Robert Walker and Thomas Zimmermann
- P33. **Zhang, L., Kim, M.,** Khurshid, S., "FaultTracer: A Spectrum-Based Approach to Localizing Failure-Inducing Program Edits," Journal of Software: Evolution and Process.

## 2012

- P34. **Kim, M.,** Zimmermann, T., Nagappan N., "A Field Study of Refactoring Challenges and Benefits," ACM SIGSOFT the 20th International Symposium on the Foundations of Software Engineering (**FSE 2012**), Cary, NC, Article No. 50, 11 pages, November 2012. (17% acceptance rate)
- P35. **Ray, B., Kim, M.,** "A Case Study of Cross-System Porting in Forked Software Projects," ACM SIGSOFT the 20th International Symposium on the Foundations of Software Engineering (**FSE 2012**), Cary, NC, Article No. 53, 11 pages, November 2012. (17% acceptance rate)
- P36. **Ray, B., Wiley, C., Kim, M.,** "Repertoire: A Cross-System Porting Analysis Tool for Forked Software Projects," ACM SIGSOFT the 20th International Symposium on the Foundations of Software Engineering (**FSE 2012 Demo**), Formal Research Tool Demonstration, Cary, NC, Article No. 8., 4 pages, November 2012.
- P37. **Zhang, L., Kim, M.,** Khurshid, S., "FaultTracer: A Change Impact and Regression Fault

Analysis Tool for Evolving Java Programs,” ACM SIGSOFT the 20th International Symposium on the Foundation of Software Engineering (**FSE 2012 Demo**), Formal Research Tool Demonstration, Cary, NC, Article No. 40, 4 pages, November 2012.

- P38. **Duley, A., Spandikow, S., Kim, M.**, “Vdiff: A Program Differencing Algorithm for Verilog Hardware Description Language,” Journal of Automated Software Engineering (**ASE Journal 2012**), Volume 19, Number 4, pages 459-490, December 2012.
- P39. **Rachatasumrit, N., Kim, M.**, “An Empirical Investigation into the Impact of Refactoring on Regression Testing,” The 28th IEEE International Conference on Software Maintenance, Trento, Italy, pages 357-366, September 2012. (25% acceptance rate)
- P40. Yang, G., Khurshid, S., **Kim, M.**, “Specification-Based Test Repair Using a Lightweight Formal Method,” The 18th International Symposium on Formal Methods, Paris, France, Volume 7436, pages 455-470, August 2012. (21% acceptance rate)
- P41. **Park, J., Kim, M., Ray, B.**, Bae, D.H., “An Empirical Study of Supplementary Bug Fixes,” The 9th IEEE Working Conference on Mining Software Repositories, Zurich, Switzerland, pages 40-49, June 2012. (29% acceptance rate) (**MSR 2012**) **Invited to the Special Issue of Journal of Empirical Software Engineering (EMSE)**
- P42. **Boos, K.**, Fok, C.L., Julien, C., **Kim, M.**, “BRACE: An Assertion Framework for Debugging Cyber-Physical Systems,” The 34th IEEE/ACM International Conference on Software Engineering (New Ideas and Emerging Results Track) (**ICSE 2012**), Zurich, Switzerland, ACM Press, pages 1341-1344, June 2012. (17% acceptance rate)
- P43. **Kim, M.** Zimmermann, T., Nagappan N., “Appendix to A Field Study of Refactoring Rationale, Benefits, and Challenges at Microsoft,” Technical Report. MSR-TR2012-4, January 11, 2012.

## **2011**

- P44. **Meng, N., Kim, M.**, McKinley, K. S., “Systematic Editing: Generating Program Transformations from an Example,” The 32nd ACM SIGPLAN Conference on Programming Language Design and Implementation (**PLDI 2011**), San Jose, CA, ACM Press, Volume 46, Number 6, pages 329-342, June 2011. (23% acceptance rate)
- P45. **Kim, M., Cai, D.**, Kim, S., “An Empirical Investigation into the Role of API-Refactorings during Software Evolution,” The 33rd IEEE/ACM International Conference on Software Engineering (**ICSE 2011**), Waikiki, HI, ACM Press, pages 151-160, May 2011. (14% acceptance rate) **Nominated for an ACM SIGSOFT Distinguished Paper Award**
- P46. Wong S., Cai, Y., **Kim, M.**, Dalton, M., “Detecting Software Modularity Violations,” The 33rd IEEE/ACM International Conference on Software Engineering (**ICSE 2011**), Honolulu, HI, ACM Press, pages 411-420, May 2011. (14% acceptance rate).
- P47. **Meng, N., Kim, M.**, McKinley, K. S., “Sydit: Creating and Applying a Program Transformation from an Example,” The 19th ACM SIGSOFT Symposium on the Foundations of Software Engineering (**FSE 2011 Demo**), Formal Research Demonstration, Szeged, Hungary, ACM Press, pages 440-443, September 2011.



- P48. **Zhang, L., Kim, M.,** Khurshid, S., “Localizing Failure-Inducing Program Edits Based on Spectrum Information,” The 27th IEEE International Conference on Software Maintenance, Williamsburg, VA, (**ICSM 2011**) **Invited to Journal of Software: Evolution and Processes**, IEEE Society, pages 23-32, September 2011. (28% acceptance rate)
- P49. **Kim, M.,** “An Exploratory Study of Awareness Interests about Software Modifications,” International Workshop on Cooperative and Human Aspects of Software Engineering, co-located with 2011 ACM and IEEE 33rd International Conference on Software Engineering, Honolulu, HI, pages 80-83, May 2011.
- P50. **Cai, D., Kim, M.,** “An Empirical Study of Long-Lived Code Clones,” The 14th International Conference on Fundamental Approaches to Software Engineering, Saarbrücken, Germany, pages 432-446, March 2011. (29% acceptance rate)

## 2010

- P51. **Duley, A., Spandikow, C., Kim, M.,** “A Program Differencing Algorithm for Verilog HDL,” The 25th IEEE/ACM International Conference on Automated Software Engineering (**ASE 2010**), Antwerp, Belgium, IEEE Computer Society, pages 477-486, September 2010. (18% acceptance rate) **ACM SIGSOFT Distinguished Paper Award. Invited to the Special Issue of Journal of Automated Software Engineering**
- P52. Wu, W., Gueheneuc, Y.G., Antoniol, G., **Kim, M.,** “AURA: A Hybrid Approach to Identify Framework Evolution,” The 32nd ACM-IEEE International Conference on Software Engineering (**ICSE 2010**), Cape Town, South Africa, ACM Press, pages 325-334, May 2010. (14% acceptance rate)
- P53. Nguyen, H. A., Nguyen, T. T., **Wilson G. Jr.,** Nguyen, A. T., **Kim, M.,** Nguyen T. N., “A Graph Based Approach to API Usage Adaptation,” The 2010 ACM SIGPLAN International Conference on Systems, Programming, Languages and Applications (**OOPSLA 2010**), Indianapolis, IN, ACM Press, Volume 45, Number 10, pages 302-321, October 2010. (28% acceptance rate)
- P54. **Prete, K., Rachatasumrit, N., Sudan N., Kim, M.,** “Template-Based Reconstruction of Complex Refactorings,” The 26th IEEE International Conference on Software Maintenance (**ICSM 2009**), Timisora, Romania, IEEE Computer Society, pages 1-10, September 2010. (26% acceptance rate)
- P55. **Kim, M., Gee, M., Loh, A., Rachatasumrit, N.** “Ref-Finder: a Refactoring Reconstruction Tool Based on Logic Query Templates,” The 18th ACM SIGSOFT Symposium on the Foundations of Software Engineering (**FSE 2010**), Formal Research Demonstration, Santa Fe, NM, ACM Press, pages 371-372, November 2010. (21% acceptance rate)
- P56. Brown, N., Cai, Y., Guo, Y., Kazman, R., **Kim, M.,** Kruchten, P., Lim, E. , MacCormack, A., Nord, R., Ozkaya, I., Sangwan, R., Seaman, C., Sullivan, K., Zazworka, N., “Managing Technical Debt in Software-Reliant Systems,” Workshop on the Future of Software Engineering Research, Proceedings of the 18th ACM SIGSOFT Symposium on the Foundations of Software Engineering, Santa Fe, NM, ACM Press, pages 47-52, November 2010.
- P57. **Wright, H. K., Kim, M.,** Perry, D. E., “Validity Concerns in Software Engineering Research,” Workshop on the Future of Software Engineering Research, The 18th ACM SIGSOFT Symposium

on the Foundations of Software Engineering, Santa Fe, NM, ACM Press, pages 47-52, November 2010.

P58. **Loh, A. Kim, M.**, "LSdiff: A Program Differencing Tool to Identify Systematic Structural Differences," The 32nd ACM-IEEE International Conference on Software Engineering (**ICSE 2010 Demo**), Formal Research Demonstration, Cape Town, South Africa, ACM Press, pages 263-266, May 2010.

P59. **Prete, K., Rachatasumrit, N., Kim, M.** "Catalogue of Template Refactoring Rules, Department of Electrical and Computer Engineering," August 15th, 2010.

## **2009**

P60. **Kim, M.**, Notkin, D., "Discovering and Representing Systematic Code Changes," The 31<sup>st</sup> IEEE/ACM International Conference on Software Engineering (**ICSE 2009**), Vancouver, Canada, IEEE Computer Society, pages 309-319, May 2009. (12% acceptance rate)

## **2008**

P61. **Kim, M.** "Analyzing and Inferring the Structure of Code Changes," Ph.D. Dissertation, University of Washington, December 2008

## **2007**

P62. **Kim, M.**, Notkin, D., Grossman, D., "Automatic Inference of Structural Changes for Matching Across Program Versions," The 29th IEEE/ACM International Conference on Software Engineering (**ICSE 2007**), Minneapolis, MN, IEEE Computer Society, pages 333-343, May 2007. (15% acceptance rate)

P63. **Kim, M.**, "Understanding and Aiding Code Evolution by Inferring Change Patterns," Doctoral Symposium Poster, The 29th IEEE/ACM International Conference on Software Engineering (**ICSE 2007 Doctoral Symposium**), Minneapolis, MN, IEEE Computer Society, pages 101-102, May 2007.

P64. Adar, E., **Kim, M.**, "SoftGUESS: Visualization and Exploration of Code Clones in Context," Formal Research Demo, The 29th IEEE/ACM International Conference on Software Engineering (**ICSE 2007 Demo**), Minneapolis, MN, IEEE Computer Society, pages 762-766, May 2007.

## **2006**

P65. **Kim, M.**, Notkin, D., "Program Element Matching for Multi-Version Program Analyses," The Third IEEE International Workshop on Mining Software Repositories (**MSR 2006**), Shanghai, China, ACM, pages 58-64, May 2006.

P66. 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 IEEE International Workshop on Mining Software Repositories (**MSR 2006**), Shanghai, China, ACM, pages 22-25, May 2006.

## **2005**



- P67. **Kim, M.**, Sazawal, V., Notkin, D., Murphy, G., “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**), Lisbon, Portugal, ACM, pages 187-196, September 2005. (16% acceptance rate) **Nominated for ACM SIGSOFT Distinguished Paper Award, Invited to Journal of ACM Transactions on Software Engineering and Methodology**
- P68. **Kim, M.**, Notkin, D., “Using a Clone Genealogy Extractor for Understanding and Supporting Evolution of Code Clones,” The Second IEEE International Workshop on Mining Software Repositories (**MSR 2005**), co-located with International Conference on Software Engineering, St. Louis, MO, ACM, Volume 3, Number 4, pages 1-5, July, 2005.

## 2004

- P69. Sazawal, V., **Kim, M.**, Notkin D., “A Study of Evolution in the Presence of Source-Derived Partial Design Representations,” The Seventh IEEE International Workshop on the Principles of Software Evolution, Kyoto, Japan, IEEE Computer Society, pages 21-30, September 2004. (30% acceptance rate)
- P70. **Kim, M.**, Bergman, L., Lau, T. A., Notkin D., “An Ethnographic Study of Copy and Paste Programming Practices in OOPL,” IEEE International Symposium on Empirical Software Engineering (**ISESE 2004**), Redondo Beach, CA, IEEE Computer Society, pages 83-92, August 2004. (39% acceptance rate)

## PROFESSIONAL SOCIETY AND MAJOR GOVERNMENTAL COMMITTEES:

**Associate Editor**, IEEE Transactions on Software Engineering (2016-current)  
**Associate Editor**, Journal of Empirical Software Engineering (2015-current)  
**General Chair** of the 13<sup>th</sup> International Conference on Mining Software Repositories (MSR 2016)  
**Program co-chair** of 35<sup>th</sup> International Conference on Software Maintenance and Evolution (ICSME 2019)  
**Program co-chair** of 24<sup>th</sup> ACM SIGSOFT International Symposium on the Foundations of Software Engineering, Visions and Reflections Paper Track (FSE 2016 VaR Track)  
**Program co-chair** of 27<sup>th</sup> IEEE Conference on Software Maintenance, Early Research Achievement Track (ICSM ERA 2011)  
**Editorial board**, Journal of Information and Science Technology (2014-current)

**Served on 40+ program committees since 2009:** top SE conferences including ICSE 2018, ICSE 2017, ICSE 2016, ICSE 2015, ICSE 2014, FSE 2014, OOPSLA 2012, ICSM 2009-2011, and MSR 2009-2012. ICSE changed to the model of Program Board (Senior PC) and Program Committee in 2015.

**I served as a Program Board member in ICSE 2015, ICSE 2016, ICSE 2017, and ICSE 2018.**

The full list is described below.

40th ACM/ IEEE International Conference on Software Engineering, Research Track, Program Board	<b>ICSE 2018</b>
39th ACM/ IEEE International Conference on Software Engineering, Research Track, Program Board	<b>ICSE 2017</b>

38th ACM/ IEEE International Conference on Software Engineering, Research Track, Program Board	<b>ICSE 2016</b>
37th ACM/ IEEE International Conference on Software Engineering, Research Track	<b>ICSE 2015</b>
ACM SIGPLAN conference on Systems, Programming, Languages and Applications: Software for Humanity, Onward!	
36th ACM/ IEEE International Conference on Software Engineering, Research Track	<b>ICSE 2014</b>
22nd ACM SIGSOFT Symposium on the Foundations of Software Engineering	<b>FSE 2014</b>
36th ACM/ IEEE International Conference on Software Engineering, Research Demonstration Track	
36th ACM/ IEEE International Conference on Software Engineering, Workshop Selection Program Committee	
35th ACM/ IEEE International Conference on Software Engineering, New Ideas and Emerging Results Track	
35th ACM/ IEEE International Conference on Software Engineering, Workshop Selection Program Committee	
35th ACM/ IEEE International Conference on Software Engineering, Research Demonstration Program Committee	
2012 ACM SIGPLAN Conference on Systems, Programming, Languages and Applications	<b>SPLASH/ OOPSLA 2012</b>
23rd International Symposium on Software Reliability Engineering	<b>ISSRE 2012</b>
20th International Symposium on the Foundation of Software Engineering, Research Demonstration Track	
ACM Student Research Competition at ICSE 2012	
9th IEEE Working Conference on Mining Software Repositories	<b>MSR 2012</b>
5th IEEE International Symposium on Empirical Software Engineering and Measurement	<b>ESEM 2011</b>
27th IEEE International Conference on Software Maintenance	<b>ICSM 2011</b>
4 <sup>th</sup> Workshop on Refactoring Tools	
8th IEEE Working Conference on Mining Software Repositories	<b>MSR 2011</b>
7th IEEE Working Conference on Mining Software Repositories	<b>MSR 2010</b>
26th IEEE International Conference on Software Maintenance	<b>ICSM 2010</b>
4th IEEE International Symposium on Empirical Software Engineering and Measurement	<b>ESEM 2010</b>
SPLASH 2010 International Workshop on Flexible Modeling Tools	
18th ACM SIGSOFT International Symposium on the Foundations of Software Engineering, Research Demonstrations Track	
4th International Workshop on Software Clones	
9th ACM SIGPLAN-SIGSOFT Workshop on Program Analysis for Software Tools and Engineering	<b>PASTE 2010</b>
25th IEEE Conference on Software Maintenance	<b>ICSM 2009</b>
6th IEEE Working Conference on Mining Software Repositories	<b>MSR 2009</b>
3rd International Workshop on Software Clones	
2009 International Conference on Quality Software	
International Workshop on Recommendation Systems for Software Engineering	

**Served on the following panels:**

National Science Foundation (2012 IIS, 2016 CCF, 2016 CCF, 2017 SBIR, and 2017 CCF)  
Computing Research Association (CRA) Career Mentoring Workshop, Early Career Faculty Panel  
Microsoft Software Engineering Innovation Foundation Workshop, Collaborating with Microsoft Research Panel  
New Faculty and Research Symposium, Advice from Junior Faculty and Researchers Panel

**Served as a reviewer for the following journals and conferences:** *ACM Transactions on Software Engineering and Methodology (TOSEM), IEEE Transactions on Software Engineering, (TSE), Journal of Empirical Software Engineering, (ESE), Journal of Automated Software Engineering (JASE), Journal of Software: Evolution and Process (JSEP), Software Quality Journal, (SQJ), IEEE Software, Journal of Software Testing, Verification and Reliability (STVR), 28th ACM Conference on Human Factors in Computing Systems, (CHI 2010) International Conference on Software Engineering (ICSE 2008)*

**Poster session chair**, 6th IEEE Working Conference on Mining Software Repositories (MSR 2009)

**Student volunteer co-chair** of 38<sup>th</sup> ACM/IEEE International Conference on Software Engineering (ICSE 2016).

**Mentor** in the Mentorship Sessions of the 24th ACM SIGSOFT International Symposium on Foundations of Software Engineering (FSE 2016)

## **STUDENT ADVISING AND PLACEMENT**

*I am inspired by my adviser, David Notkin's philosophy, "Focus on the students, since graduating great students means you'll produce great research, while focusing on the research may or may not produce great students."*

***I placed 3 tenure-track assistant professors in 2015.***

### **Ph.D. Dissertation Supervision:**

Na Meng. "Automating Program Transformations based on Examples of Systematic Edits." 2014

*Employment: Assistant Professor at Virginia Tech*

Baishakhi Ray. "Analysis of Cross-System Porting and Porting Errors in Software Projects." 2013

*Employment: a postdoc at UC Davis=> Assistant Professor at University of Virginia =>*

*Assistant Professor at Columbia University*

### **Postdoc Supervision:**

Myoungkyu Song

2013-2015

*First Employment: Assistant Professor at University of Nebraska, Omaha*

### **Current Ph.D. Students:**

Tianyi Zhang (PhD student, started in Fall 2013)

Muhammad Gulzar (PhD student, started in Fall 2014)

Shaghayegh Mardani (PhD student, started in Fall 2015)

Jia Teoh (PhD student, started in Fall 2016)

Aishwarya Sivaraman (PhD student, started in Fall 2017)

### **M.S. Thesis Supervision:**

Valeed Malik, "Clone Detection in R"

2017

Yamini Gotimulkul, "A Study of Cross-Project Porting Awareness using Visual Exploration"

Lisa Hua, "A Case Study of Cross-Branch Porting in Linux Kernel"

2014

Gary Wilson Jr. “*An Empirical Study on Software Quality: Developer Perception of Quality, Metrics, and Visualizations*” 2013  
 Mark Baum, “*Refactoring for Software Transactional Memory*” 2011  
 Jihun Park (co-supervised with Doo Hwan Bae) “*An Empirical Study of Supplementary Bug Fixes*” 2011

**Undergraduate Research Supervision:**

Xueyuan Han (CS), Undergraduate Research Assistant => *PhD Student at Harvard University*  
 Tyler McDonell, “*An Empirical Study of API Stability and Adoption in the Android Ecosystem*” => *PhD student at UT Austin*  
 Napol Rachatasumrit, “*An Empirical Investigation into the Impact of Refactoring on Regression Testing*” => *Microsoft, MS student at University of Washington.*  
 John Jacobellis (ECE), NSF REU research assistant. => *MS Student at Carnegie Mellon University*  
 Nick Kubala (CS), NSF REU research assistant  
 Diane Lee (CS), NSF REU research assistant (Graduated in Spring 2012)  
 Justin Chen (ECE), NSF REU research assistant (Graduated in Spring 2012)

**UNIVERSITY COMMITTEE ASSIGNMENTS:**

Departmental	Chair of CS Diversity Committee (UCLA)	2016-2017	
	Faculty Sponsor of ACM-W (UCLA)	2014-present	
	Initiated ACM-W Distinguished Speaker Series	2016-present	
	CS 201 Coordinator	2014-2015	
	Faculty Sponsor of Women in ECE (UT Austin)	2011-2014	
	Graduate Studies Committee (UT Austin)	2009-2014	
	Graduate Admissions Committee (UT Austin)	2009-2012	
	Graduate Site Visit Day Coordinator (UT Austin)	2012	
	Graduate Recruiting Committee (UT Austin)	2009-2012	
	Faculty Recruiting Committee (UT Austin)	2010-2011	
	School	Member, Diversity Committee in Henry Samueli School of Engineering and Applied Science (UCLA)	2015-present
		College	Member, Women in Engineering (WEP) Committee (UT Austin)
	University		Faculty in Residence, Office of Residential Life (UCLA)

## ORAL PRESENTATIONS / OTHER PROFESSIONAL ACTIVITIES:

- Seminar: “Interactive and Automated Debugging for Big Data Analytics”
  - University of California, Berkeley, May 2018
  - University of Washington, April 2018
- PI Meeting Talk: Synergistic Software Customization: Frameworks, Algorithms and Tools, Office of Naval Research TPCP program, May 2018
- **Distinguished Lecture, “Interactive and Automated Debugging for Big Data Analytics,” University of California, Irvine, February 2018**
- Invited Talk: “Who are we? The largest-scale study of professional data scientists,” Strata Conference in San Jose, March 2018
- PI Meeting Talk: “Synergistic Software Customization: Frameworks, Algorithms and Tools,” ONR TPCP Kickoff Meeting, UCLA, January 2018
- **Invited Speaker for Facebook Software Engineering Workshop, *I was one of seven world leading software engineering researchers selected for an invited talk.* “Interactive and Automated Debugging for Big Data Analytics.” in London, December 2018.**
- PI Meeting Talk: Dynamic Invariant based FPGA Optimization and Performance Debugging, Intel / NSF Project Kick Off Meeting, Santa Clara, CA, September 2017
- **Invited Talks: “Interactive and Automated Debugging for Big Data Analytics”** in the following 5 locations in 2017
  - University of College London, June 2017
  - LMU Munich, Germany, June 2017
  - Google, Los Angeles, CA, April 2017
- **Invited Talks: “Interactive Debugging for Big Data Analytics,”** in the following 2 locations in 2016
  - University of Southern California, Los Angeles, CA, November 2016
  - Microsoft Research, Redmond WA September 2016
- Paper Presentation: “The Emerging Role of Data Scientists on Software Development Teams” IEEE/ACM 38th IEEE International Conference on Software Engineering” Austin, TX, 2016
- **Invited Colloquium: “Automating Program Transformations based on Examples of Systematic Edits”, Hong Kong University of Science and Technology, Nov 2015.**
- Microsoft Research, Programmability at Cloud Scale Workshop, “Interactive big data debugging” Redmond, WA, July 2015
- Paper Presentation: “Interactive Code Review for Systematic Changes” IEEE/ACM 37th IEEE International Conference on Software Engineering” Florence, Italy 2015
- Paper Presentation: “Does Automated Refactoring Obviate Systematic Editing?” IEEE/ACM 37th IEEE International Conference on Software Engineering” Florence, Italy 2015
- “Cooperative Trusted Software Repair for Cyber Physical System Resiliency,” AFRL Kickoff Meeting, Rome NY, April 2015
- “RefDistiller: A Refactoring-Aware Code Review Tool for Inspecting Manual Refactoring Edits,” SoCal Programming Languages Workshop, December 2014.
- “Analysis and Automation of Systematic Software Changes,” DARPA MUSE Kickoff Meeting, Annapolis, October 2014
- Microsoft Research, End of Visit Talk, “The Emerging Role of Data Scientists in Software Development Teams,” Redmond, WA, August 2014
- “Information> Tool vs. Information ->Tools”, Dagstuhl Seminar on Software Development Analytics, June 2014
- **Invited Speaker for Top Gun Series –recognizes faculty on a trajectory to be the research**

***leaders of the coming decades, “Automation, Analysis, and Reconstruction of Systematic Changes,” University of Virginia, Charlottesville, VA, November 2013***

- Paper Presentation: “An Empirical Study of API Stability and Adoption in the Android Ecosystem,” 29th IEEE International Conference on Software Maintenance, Eindhoven, the Netherlands, September 2013
- **“Automation, Analysis, and Reconstruction of Systematic Changes,” Seminar at the following 6 universities, May 2013-November 2013:**
  - University of Maryland, College Park, MD, November 2013
  - University of Wisconsin, Madison WI, September 2013
  - University of Illinois Urbana Champaign, Champaign, IL, September 2013
  - IBM Research, Austin, TX, August 2013
  - University of Southern California, Los Angeles, CA, June 2013
  - Carnegie Mellon University, Pittsburgh, PA, May 2013
- Paper Presentation: “A Field Study of Refactoring Challenges and Benefits,” ACM SIGSOFT the 20th International Symposium on the Foundations of Software Engineering, Cary, NC, November 2012
- Paper Presentation: “An Empirical Investigation into the Impact of Refactoring on Regression Testing,” The 28th IEEE International Conference on Software Maintenance, Riva del Garda, Trento, Italy, September 2012
- “RefFinder: A Logic Query based Refactoring Reconstruction Approach,” Microsoft Software Engineering Innovation Foundation (SEIF) Workshop, Redmond, WA, July 2012
- **Microsoft Faculty Summit SEIF Workshop Invited Panelist**—Collaborating with Microsoft Research session, Redmond, WA, July 2012
- **CRA Career Mentoring Workshop Invited Panelist**—Advice from Junior Faculty and Researchers session, Washington, DC, February, 2012
- “Analysis and Automation of Systematic Software Modifications,” Seminar at the following 6 universities, December 2011-January 2012:
  - University of California, San Diego, CA
  - University of California, Irvine, CA
  - Tsinghua University, Beijing, China
  - Peking University, Beijing, China
  - Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea
  - Sungkyunkwan University, Seoul, South Korea
- Microsoft Research, End of Visit Talk, “A Field Study of Refactoring Rationale, Benefits, and Challenges,” Redmond, WA, August 2011
- **New Faculty and Researchers Symposium Invited Panelist**—Advice from Junior Faculty and Researchers session, The 33rd International Conference on Software Engineering (ICSE 2011), Honolulu, HI, May 2011
- Paper Presentation: “An Empirical Investigation into the Role of Refactoring during Software Evolution,” The 33rd International Conference on Software Engineering (ICSE 2011), Honolulu, HI, May 2011
- “Advanced Software Evolution Analysis,” Texas Software Engineering Symposium, Austin, TX, June 2011
- Paper Presentation: “An Empirical Study of Long-Lived Code Clones,” The 14th International Conference on Fundamental Approaches to Software Engineering (ETAPS/FASE 2011), Saarbrücken, Germany, April 2011
- “Automating Systematic Software Extension,” Software Engineering Seminar at Saarland University in Saarbrücken, Germany, April 2011
- Paper Presentation: “Ref-Finder: Refactoring Reconstruction Tool based on Logic Query



Templates,” The 18th ACM SIGSOFT Symposium on the Foundations of Software Engineering (FSE 2010), Santa Fe, NM, November 2010

- Paper Presentation: “Validity Concerns in Software Engineering,” The 18th ACM SIGSOFT Symposium on the Foundations of Software Engineering (FSE 2010), Santa Fe, NM, November 2010
- “Supporting Evolution of Large Software Systems,” UT CS Programming Languages Seminar, Austin TX, November 2010
- Paper Presentation: “Template-based Reconstruction of Complex Refactoring,” International Conference on Software Maintenance, (ICSM 2010), Timisoara, Romania, September 2010
- “Software Evolution Analysis,” Technical Debt Workshop, Carnegie Mellon Software Engineering Institute, Pittsburgh, PA, June 2010
- “Discovering and Representing Systematic Code Changes,” Dacapo Meeting, Tufts University, Medford, MA, April 2009
- Paper Presentation: “Discovering and representing systematic code changes,” International Conference on Software Engineering, (ICSE 2009), Vancouver, BC, Canada, May 2009
- “Analyzing and Inferring the Structure of Code Changes,” Seminar at the following 3 locations, November 2008:
  - Seoul National University, Seoul, South Korea
  - Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea
  - Samsung Electronics, Suwon, South Korea
- **“Analyzing and Inferring the Structure of Code Changes,” Faculty Candidate Talk at the following 7 locations, February- April 2008:**
  - University of California, Berkeley, CA
  - Georgia Institute of Technology, Atlanta, GA
  - University of Texas at Austin, TX
  - North Carolina State University, Raleigh, NC
  - University of Colorado, Boulder, CO
  - Oregon State University, Corvallis, OR
  - Microsoft Research, Redmond, WA
- “Discovering and Representing Logical Structure in Code Changes,” Dagstuhl Seminar 07491 on Mining Programs and Processes, Schloss Dagstuhl, Saarbrücken, Germany, December 2007.
- Paper Presentation: “Automatic Inference of Structural Changes for Matching across Program Versions,” International Conference on Software Engineering, (ICSE 2007), Minneapolis, MN, USA, May 2007
- Doctoral Symposium Presentation: “Understanding and Aiding Code Evolution by Inferring Change Patterns,” International Conference on Software Engineering, (ICSE 2007), Minneapolis, MN, USA, May 2007
- **“Automatic Inference of Likely Changes for Matching Across Program Versions,” Seminar at the following 4 universities, November 2006:**
  - University of Saarland, Germany
  - University of Zurich, Zurich, Switzerland
  - University of Lugano, Lugano, Switzerland
  - University of Bremen, Bremen, Germany
- Paper Presentation: “Program Element Matching for Multi-Version Program Analyses,” Mining Software Repositories Workshop, (MSR 2006), Shanghai, China, May 2006
- “Multi-Version Program Analysis,” Seminar, Pohang University of Science and Technology, Pohang, South Korea, June 2006
- Paper Presentation: “An Empirical Study of Code Clone Genealogies,” European Software Engineering Conference held jointly with 13th ACM SIGSOFT International Symposium on

- Foundations of Software Engineering, (ESEC/FSE 2005), Lisbon, Portugal, September 2005
- “An Empirical Study of Code Clone Genealogies,” IBM T.J. Watson Research Center, Hawthorn, NY, September 2005
  - “A Study of Code Clone Genealogies,” Dagstuhl Seminar 05261 on Multi-Version Program Analysis, Schloss Dagstuhl, Saarbrucken, Germany, June 2005
  - “Evolution of Code Clones in Open Source Projects,” Department of Electrical and Computer Engineering, University of British Columbia, Canada, January 2005
  - Paper Presentation: “An Ethnographic Study of Copy and Paste Programming Practices in OOPL,” International Symposium on Empirical Software Engineering (ISESE 2004), Redondo Beach, CA, USA, August 2004
  - “An Ethnographic Study of Copy and Paste Programming Practices,” Seminar at the following 2 universities.
    - University of British Columbia, Canada, March 2004
    - University of Victoria, Canada, March 2004