

# Raffi Khatchadourian

*Assistant Professor—Computer Science*

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📁 [khatchad.commons.gc.cuny.edu](http://khatchad.commons.gc.cuny.edu)

## Objective

To develop techniques, methodologies, theories, and tools that alleviate the burden associated with correctly and efficiently evolving large and complex software systems.

## Interests

Software security, secure software engineering, formal methods, programming languages, refactoring, automated software evolution, static and dynamic program analysis, information retrieval, recommendation systems.

## Experience

- 2016– **Assistant Professor**, *Department of Computer Science, Hunter College, City University of New York, New York, NY.*
- 2016– **Doctoral Faculty**, *The Graduate School and University Center's PhD Program in Computer Science, City University of New York, New York, NY.*
- 2014–2016 **Assistant Professor**, *Department of Computer Systems Technology, New York City College of Technology, City University of New York, Brooklyn, NY.*
- 2011–2014 **Software Engineer**, *Apple Inc., Cupertino, CA.*
- 2005–2011 **Graduate Teaching and Research Associate**, *Department of Computer Science & Engineering, Ohio State University, Columbus, OH.*
- 2010 **Visiting Scholar**, *Programming Principles and Practices (PPP) Group, Department of Graphics and Computer Science, University of Tokyo, Tokyo, Japan.*
- 2008 **Visiting Scholar**, *Aspect-Oriented Software Engineering Group, Department of Computing, Lancaster University, Lancaster, UK.*
- 2007 **Member of Technical Staff**, *Computer Sciences Research Center, Bell Laboratories, Alcatel-Lucent, Murray Hill, NJ.*
- 2004–2005 **Software Engineer**, *State of New Jersey Office of Information Technology, Trenton, NJ.*
- 2003–2004 **UNIX Systems Administrator**, *Integrated Medical Care, Toms River, NJ.*

## Education

- 2005–2011 **Ph.D.**, *Department of Computer Science & Engineering, Ohio State University, Columbus, OH.*
- 2010 **M.S.**, *Department of Computer Science & Engineering, Ohio State University, Columbus, OH.*
- 2004 **B.S.**, *Department of Computer Science, Monmouth University, West Long Branch, NJ.*

## Publications

(My and my research students' names are in boldface. Undergraduate students are in italics.)

Conference Publications (peer-reviewed)

**Raffi Khatchadourian, Yiming Tang,** Mehdi Bagherzadeh, and Syed Ahmed. A tool for optimizing Java 8 stream software via automated refactoring. In *International Working Conference on Source Code Analysis and Manipulation*, SCAM '18. IEEE, September 2018. (9/17; 53% acceptance rate). To appear.

**Raffi Khatchadourian** and Hidehiko Masuhara. Proactive empirical assessment of new language feature adoption via automated refactoring: The case of Java 8 default methods. In *International Conference on the Art, Science, and Engineering of Programming*, volume 2 of *Programming '18*, pages 6:1–6:30. AOSA, March 2018.

**Raffi Khatchadourian** and Hidehiko Masuhara. Automated refactoring of legacy Java software to default methods. In *International Conference on Software Engineering*, ICSE '17, pages 82–93, Piscataway, NJ, USA, May 2017. ACM/IEEE, IEEE Press. (68/398; 17% acceptance rate).

**Raffi Khatchadourian,** Awais Rashid, Hidehiko Masuhara, and Takuya Watanabe. Detecting broken pointcuts using structural commonality and degree of interest. In *International Conference on Automated Software Engineering*, ASE 2015, pages 641–646, New York, NY, USA, November 2015. IEEE/ACM. (77/326; 23.6% acceptance rate).

Neelam Soundarajan, Derek Bronish, and **Raffi Khatchadourian**. Formalizing reusable aspect-oriented concurrency control. In *International Conference on Software Engineering & Knowledge Engineering*, SEKE '11, pages 111–114. Knowledge Systems Institute Graduate School, July 2011.

**Raffi Khatchadourian,** Phil Greenwood, Awais Rashid, and Guoqing Xu. Pointcut rejuvenation: Recovering pointcut expressions in evolving aspect-oriented software. In *International Conference on Automated Software Engineering*, ASE '09, pages 575–579, Washington, DC, USA, November 2009. IEEE/ACM. (71/222; 32% acceptance rate).

Neelam Soundarajan, **Raffi Khatchadourian,** and Johan Dovland. Reasoning about the behavior of aspect-oriented programs. In J. Smith, editor, *International Conference on Software Engineering and Applications*, SEA '07. IASTED, ACTA Press, November 2007.

**Raffi Khatchadourian,** Jason Sawin, and Atanas Rountev. Automated refactoring of legacy Java software to enumerated types. In *International Conference on Software Maintenance*, ICSM 2007, pages 224–233. IEEE, October 2007. (46/214; 21% acceptance rate).

### Journal Publications (peer-reviewed)

**Raffi Khatchadourian.** Automated refactoring of legacy Java software to enumerated types. *Automated Software Engineering*, 24(4):757–787, December 2017.

**Raffi Khatchadourian,** Awais Rashid, Hidehiko Masuhara, and Takuya Watanabe. Detecting broken pointcuts using structural commonality and degree of interest. *Science of Computer Programming*, 150:56–74, December 2017.

**Raffi Khatchadourian,** Phil Greenwood, Awais Rashid, and Guoqing Xu. Pointcut rejuvenation: Recovering pointcut expressions in evolving aspect-oriented software. *IEEE Transactions on Software Engineering*, 38(3):642–657, May 2012.

### Workshop Publications (peer-reviewed)

**Raffi Khatchadourian, Olivia Moore,** and Hidehiko Masuhara. Towards improving interface modularity in legacy Java software through automated refactoring. In *Companion Proceedings of the International Conference on Modularity*, MODULARITY Companion 2016, pages 104–106, New York, NY, USA, March 2016. ACM.

Neelam Soundarajan and **Raffi Khatchadourian**. Specifying reusable aspects. In *Asian Workshop on Aspect-Oriented and Modular Software Development*, AOAsia '09, November 2009.

Phil Greenwood, Awais Rashid, and **Raffi Khatchadourian**. Contributing factors to pointcut fragility. In *Workshop on Assessment of Contemporary Modularization Techniques*, ACoM '09, pages 19–24. ACM, October 2009.

**Raffi Khatchadourian**, Phil Greenwood, and Awais Rashid. On the assessment of pointcut design in evolving aspect-oriented software. In *Workshop on Assessment of Contemporary Modularization Techniques*, ACoM '08, pages 9–10. Lancaster University, ACM, October 2008.

**Raffi Khatchadourian**, Johan Dovland, and Neelam Soundarajan. Enforcing behavioral constraints in evolving aspect-oriented programs. In *Workshop on Foundations of Aspect-oriented Languages*, FOAL '08, pages 19–28, New York, NY, USA, April 2008. ACM.

**Raffi Khatchadourian** and Neelam Soundarajan. Rely-guarantee approach to reasoning about aspect-oriented programs. In *Workshop on Software Engineering Properties of Languages and Aspect Technologies*, SPLAT '07, New York, NY, USA, March 2007. ACM.

### Tool Demonstrations (peer-reviewed)

**Raffi Khatchadourian** and Hidehiko Masuhara. Defaultification refactoring: A tool for automatically converting Java methods to default. In *International Conference on Automated Software Engineering*, ASE '17, pages 984–989, Piscataway, NJ, USA, October 2017. ACM/IEEE, IEEE Press. (20/32; 63% acceptance rate).

**Raffi Khatchadourian**, Awais Rashid, Hidehiko Masuhara, and Takuya Watanabe. Fraglight: Shedding light on broken pointcuts in evolving aspect-oriented software. In *Companion Proceedings of the 2015 ACM SIGPLAN International Conference on Systems, Programming, Languages and Applications: Software for Humanity*, SPLASH Companion 2015, pages 17–18, New York, NY, USA, October 2015. ACM.

**Raffi Khatchadourian** and Benjamin Muskalla. Enumeration refactoring: A tool for automatically converting Java constants to enumerated types. In *International Conference on Automated Software Engineering*, ASE '10, pages 181–182, New York, NY, USA, September 2010. IEEE/ACM. (18/45; 40% acceptance rate).

**Raffi Khatchadourian** and Awais Rashid. Rejuvenate pointcut: A tool for pointcut expression recovery in evolving aspect-oriented software. In *International Working Conference on Source Code Analysis and Manipulation*, SCAM '08, pages 261–262. IEEE, September 2008.

### Posters (peer-reviewed)

**Yiming Tang**, **Raffi Khatchadourian**, Mehdi Bagherzadeh, and Syed Ahmed. Towards safe refactoring for intelligent parallelization of java 8 streams. In *International Conference on Software Engineering: Companion Proceedings*, ICSE '18, pages 206–207, New York, NY, USA, May 2018. ACM/IEEE, ACM.

**Md. Arefin** and **Raffi Khatchadourian**. Porting the netbeans Java 8 enhanced for loop lambda expression refactoring to Eclipse. In *Companion Proceedings of the 2015 ACM SIGPLAN International Conference on Systems, Programming, Languages and Applications: Software for Humanity*, SPLASH Companion 2015, pages 58–59, New York, NY, USA, October 2015. ACM.

### Technical Reports

**Raffi Khatchadourian**, Phil Greenwood, Awais Rashid, and Guoqing Xu. Pointcut rejuvenation: Recovering pointcut expressions in evolving aspect-oriented software. Technical Report COMP-001-2008, Revised March 2009, May 2009, Lancaster University, Lancaster, UK, August 2008.

**Raffi Khatchadourian**, Jason Sawin, and Atanas Rountev. Automated refactoring of legacy Java software to enumerated types. Technical Report OSU-CISRC-4/07-TR26, Ohio State University, April 2007.

## Project Deliverables

Jean-Claude Royer, Joost Noppen, Nicolas Anquetil, Andreas Rummeler, Ralf Mitschke, André Sousa, Uira Kulesza, **Raffi Khatchadourian**, Phil Greenwood, Awais Rashid, and Ismênia Galvao. Software support for the traceability framework, including extension of current configuration management and product line evolution model. Technical Report AMPLE D4.2, Aspect-Oriented, Model-Driven Product Line Engineering, October 2008.

**Raffi Khatchadourian**, Ruzanna Chitchyan, Phil Greenwood, Awais Rashid, Juan A. Valenzuela, Luis M. Fernández, Mónica Pinto, Lidia Fuentes, Andrew Jackson, and Siobhán Clarke. Overall aspect-oriented analysis and design approach. Technical Report AOSD-Europe Deliverable D132, AOSD-Europe-ULANC-49, European Network of Excellence on Aspect-Oriented Software Development, September 2008.

Mónica Pinto, Lidia Fuentes, Ruzanna Chitchyan, Awais Rashid, Andrew Jackson, Siobhán Clarke, Boris Shishkov, Bedir Tekinerdogan, Mehmet Aksit, Phil Greenwood, and **Raffi Khatchadourian**. Traceability framework: From requirements through architecture and design. Technical Report AOSD-Europe Deliverable D126, AOSD-Europe-ULANC-43, European Network of Excellence on Aspect-Oriented Software Development, July 2008.

Safoora Omer Rashid, Ruzanna Chitchyan, Awais Rashid, **Raffi Khatchadourian**, and Phil Greenwood. Approach for change impact analysis of aspectual requirements. Technical Report AOSD-Europe Deliverable D110, AOSD-Europe-ULANC-40, European Network of Excellence on Aspect-Oriented Software Development, January 2008.

## Theses

**Raffi Khatchadourian**. *Techniques for Automated Software Evolution*. PhD thesis, Ohio State University, 247 University Hall, 230 North Oval Mall, Columbus, OH, USA 43210, April 2011.

## Patents

Gianpaolo Fasoli, Augustin Farrugia, Apoorva Govind, and **Raffi Khatchadourian**. Controlling use of shared content items based on client device, January 2016. US Patent 20,160,019,375; US Patent App. 14/634,405.

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## Grants

### Research Grants

#### *External*

- 2018 Amazon Web Services (AWS) Cloud Credits for Research Program Grant Recipient as sole investigator (\$800 US). *Analyses and Automated Refactorings for Imperative Programs that Use Functional Features*. See [aws.amazon.com/research-credits](https://aws.amazon.com/research-credits)
- 2010 National Science Foundation (NSF) Grant (OISE-1015773) Recipient as sole investigator (\$5,617 US). *EAPSI: Automated Refactoring of Legacy Java Frameworks to Annotation Types*. See [bit.ly/2rBuOc3](https://bit.ly/2rBuOc3)

### Internal

- 2018 PSC-CUNY Research Grant (Enhanced, ENHC-49-126) Recipient as sole investigator (\$12,000 US). *Analyses and Automated Refactorings for Imperative Programs that Use Functional Features*.
- 2017 PSC-CUNY Research Grant (Traditional A, TRADA-48-502) Recipient as sole investigator (\$3,499.50 US). *Analyses and Transformations for Concurrent Imperative Programs using MapReduce*.
- 2016 PSC-CUNY Research Grant (Traditional A, TRADA-47-255) Recipient as sole investigator (\$3,499.02 US). *Automatic Migration of Legacy Java Method Implementations to Interfaces*.
- 2015 City University of New York (CUNY) Diversity Projects Development Fund (DPDF) Grant Recipient as sole investigator (\$5,000 US). *Design for a Cloud-based Java IDE for Teaching Minorities*.

### Developmental Grants

#### External

- 2017 Women in Technology and Entrepreneurship in New York (WiTNY) Grant recipient as co-principal investigator (\$25,000 US). *Project Khaleesi—Mentoring Tomorrow's Cybersecurity Queen of Dragons*. See [tech.cornell.edu/impact/witny](http://tech.cornell.edu/impact/witny)

#### Internal

- 2015 New York City College of Technology, City University of New York Open Educational Resources (OER) Initiative Fellowship Recipient (23 hours at the 60% non-teaching adjunct faculty rate).

### Travel Grants

#### External

- 2016,2018 National Science Foundation (NSF) International Conference on Software Engineering (ICSE) Travel Award Recipient (\$3,276 US).
- 2007,2008(2), 2009,2015 ACM SIGPLAN Professional Activities Committee (PAC) Travel Grant Recipient (\$2,021 US).
- 2009,2010 ACM SIGSOFT CAPS Program Travel Grant Recipient (\$2,300 US).
- 2008 European Network of Excellence on Aspect-Oriented Software Development Student Grant Recipient (€300).

#### Internal

- 2017 Research Foundation (RF) of the City University of New York (CUNY) Faculty Research Travel Program (\$750 US).
- 2016 City University of New York (CUNY) Office of the Vice Chancellor for Research Travel Funds Program Recipient (\$895 US).
- Spring 2015, Fall 2015 New York City College of Technology, City University of New York Professional Development Advisory Council (PDAC) Travel Award Recipient (\$2,150 US).
- 2008,2009 Lancaster University Faculty of Science & Technology Travel Grant Recipient (£300).

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## Awards

### Research Awards

#### External

- 2015 Tokyo Institute of Technology Research Abroad and Invitational Program for the Promotion of International Joint Research Award Recipient (¥328,480).
- 2010 Japan Society for the Promotion of Science (JSPS) Summer Program Fellowship (SP10024) Recipient (¥692,500). See [bit.ly/2s6pWiG](http://bit.ly/2s6pWiG)

2007 Visiting Studentship in Aspect-Oriented Software Analysis and Design, Computing Department, Lancaster University, UK (£8,000).

*Internal*

2017 Hunter College, City University of New York Faculty Research Fellowship Recipient.

**Teaching Awards**

2010 Ohio State University Department of Computer Science & Engineering Graduate Teaching (Eleanor Quinlan Memorial) Award Recipient (\$500 US).

2010 Ohio State University Graduate Associate Teaching Award Nominee.

**Studential Awards**

2004 Monmouth University Outstanding Undergraduate Computer Science Student Award Recipient.

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## Teaching

### Open Educational Resources (OERs)

2016 **Creator**, *CST 1201: Programming Fundamentals Open Educational Resource (OER)*, Department of Computer Systems Technology, New York City College of Technology, City University of New York. *See wp.me/P7F7J0-4.*

### Instructional Experience

- Spring 2018 **Instructor**, *CSc 81020: Software Analysis & Transformation*, Department of Computer Science, Graduate Center, City University of New York.
- Spring 2017, **Instructor**, *CSCI 13500: Software Analysis and Design I*, Department of Computer Science,  
Fall 2017 Hunter College, City University of New York.
- Spring 2017 **Instructor**, *CSCI 40500: Software Engineering*, Department of Computer Science, Hunter College, City University of New York.
- Fall 2016 **Instructor**, *CSCI 49900: Advanced Applications: A Capstone for Majors*, Department of Computer Science, Hunter College, City University of New York.
- Fall 2016 **Instructor**, *CSCI 23300: Programming Projects Seminar for Minors*, Department of Computer Science, Hunter College, City University of New York.
- Spring 2016 **Instructor**, *CST 4713: Dynamic Web Development*, Department of Computer Systems Technology, New York City College of Technology, City University of New York.
- 2014–2016 (4) **Instructor**, *CST 1201: Programming Fundamentals*, Department of Computer Systems Technology, New York City College of Technology, City University of New York.
- Spring 2015, **Instructor**, *CST 2301: Multimedia and Mobile Device Programming*, Department of Computer  
Fall 2015 Systems Technology, New York City College of Technology, City University of New York.
- Fall 2014 **Instructor**, *CST 1101: Problem Solving with Computer Programming*, Department of Computer Systems Technology, New York City College of Technology, City University of New York.
- 2005–2011 **Instructor**, *CS&E 230: Introduction to C++ Programming*, Department of Computer Science  
(12) & Engineering, Ohio State University.
- Sp07, Au08, **Instructor**, *CS&E 202: Introduction to Programming and Algorithms for Engineers and Scientists*,  
Au09 Department of Computer Science & Engineering, Ohio State University.
- Spring 2008 **Invited Lecturer**, *Seminar in L<sup>A</sup>T<sub>E</sub>X Typography*, Department of Graduate Studies, Lancaster University, Lancaster, UK.
- 2003–2004 **Mathematics Tutor**, *Mathematics Learning Center*, Department of Mathematics, Monmouth University, West Long Branch, NJ.

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## Open Source Software

- 2017– OPTIMIZE JAVA 8 STREAMS. Java source code refactoring plug-in for Eclipse. Optimizes Java 8 stream clients for increased efficiency and parallelism through refactoring. *See [git.io/vpTLk](https://git.io/vpTLk).*
- 2015– MIGRATE SKELETAL IMPLEMENTATION TO INTERFACE. Java source code refactoring plug-in for the Eclipse open source Integrated Development Environment. Migrates legacy Java skeletal implementations to Java 8 enhanced interfaces. *See [git.io/vwpaK](https://git.io/vwpaK).*
- 2011– FRAGLIGHT. AspectJ source code inferencing plug-in for the Eclipse open source Integrated Development Environment, providing tool support for early detection of broken pointcuts in evolving Aspect-Oriented software. Integrated with the Mylyn task focusing plug-in for Eclipse. *See [eclipselabs.org/p/fraglight](https://eclipselabs.org/p/fraglight).*
- 2008– REJUVENATE POINTCUT. AspectJ source code inferencing plug-in for the Eclipse open source Integrated Development Environment, providing tool support for pointcut expression recovery in evolving Aspect-Oriented software. *See [code.google.com/p/rejuvenate-pc](https://code.google.com/p/rejuvenate-pc).*
- 2007– CONVERT CONSTANTS TO ENUM. Java source code refactoring plug-in for the Eclipse open source Integrated Development Environment. Planned for release in the standard distribution of Eclipse. *See [code.google.com/p/constants-to-enum-eclipse-plugin](https://code.google.com/p/constants-to-enum-eclipse-plugin).*

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## Computer Skills

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|-------------|---|----------------|---------------------------------|
| programming | Java S/EE, C++, Objective-C, AspectJ, C#          | scripting      | Python, bash, PHP               |
| platforms   | Java SDK, Eclipse SDK, Cocoa, .NET                | versioning     | Git, SVN, CVS, P4               |
| IDE         | Eclipse, Xcode, NetBeans, Visual Studio .NET, Vim | rules          | JBoss Drools, Prolog            |
| testing     | JUnit, OJUnit                                     | instruments    | R&S CMW 500/CMU 200             |
| building    | ant, make, Xcode                                  | administration | Apache, Samba, iptables         |
| OS          | Mac OS X, Linux, UNIX                             | typography     | L <sup>A</sup> T <sub>E</sub> X |
| web         | JSF, JBoss Seam, Drupal, WordPress                | database       | SQL, Postgresql, MySQL, Oracle  |

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## Academic Service

### Departmental Service

- 2018 **Organizer**, *Hunter College Cybersecurity Summer Camp for female non-CS majors, Department of Computer Science, Hunter College, City University of New York, New York, NY, See [cuny.is/cyber](https://cuny.is/cyber).*
- 2018 **Member**, *Lecturer Search Committee, Department of Computer Science, Hunter College, City University of New York, New York, NY.*
- 2018 **Member**, *Admissions Committee, Department of Computer Science, Graduate Center, City University of New York, New York, NY.*
- 2017 **Member**, *Grade Appeal Committee, Department of Computer Science, Hunter College, City University of New York, New York, NY.*
- 2016– **Member**, *Women in Computer Science at Hunter College (WICS-HC) Committee in collaboration with the National Center for Women & Information Technology (NCWIT), Department of Computer Science, Hunter College, City University of New York, New York, NY.*
- 2015–2016 **Member**, *Curriculum Committee, Department of Computer Systems Technology, New York City College of Technology, City University of New York, Brooklyn, NY.*

- 2014–2016 **Chair**, *Colloquium Committee, Department of Computer Systems Technology, New York City College of Technology, City University of New York, Brooklyn, NY.*
- 2015–2016 **Secretary**, *Department of Computer Systems Technology, New York City College of Technology, City University of New York, Brooklyn, NY.*
- 2015 **Department Mobile Application Coordinator**, *Computer Information Association, Department of Computer Systems Technology, New York City College of Technology, City University of New York, Brooklyn, NY.*
- 2015 **Interviewer**, *Computer Information Association, Department of Computer Systems Technology, New York City College of Technology, City University of New York, Brooklyn, NY.*
- 2014–2015 **Member**, *Assessment Committee, Department of Computer Systems Technology, New York City College of Technology, City University of New York, Brooklyn, NY.*
- 2014– **Member**, *Recruitment Committee, Department of Computer Systems Technology, New York City College of Technology, City University of New York, Brooklyn, NY.*
- 2011 **Member**, *Annual Awards Selection Committee, Department of Computer Science & Engineering, Ohio State University, Columbus, OH.*

### Collegiate Service

- 2015(2),2016(2) **Judge**, *New York City Science & Engineering Fair (NYCSEF), New York, NY.*
- Spring **Faculty Judge**, *Undergraduate Research Poster Session, New York City College of Technology, City University of New York, Brooklyn, NY.*
- 2015, Fall 2015 **Panelist**, *“Using Open Educational Resources (OER) in the Classroom,” New York City College of Technology, City University of New York, Brooklyn, NY.*
- 2015 **New Faculty Orientation Participant**, *New York City College of Technology, City University of New York, Brooklyn, NY.*
- 2015 **Usability Study Participant**, *OpenLab, New York City College of Technology, City University of New York, New York, NY.*
- 2015 **Software Engineering Consultant**, *New York City College of Technology, City University of New York, Brooklyn, NY.*
- 2015 **Panelist**, *New York City Advancing Computer Science Careers through Enhanced Networking and Training (NYC ASCENT), New York, NY.*
- 2014 **Faculty Judge**, *Public Speaking Competition, New York City College of Technology, City University of New York, Brooklyn, NY.*

### University Service

- 2018 **Author**, *Invited blog post entitled, “Creating Faculty Portfolio Sites on the Commons,” CUNY Academic Commons News, City University of New York, New York, NY, See [wp.me/p4UsO6-Za](http://wp.me/p4UsO6-Za).*
- 2015–2016 **Member**, *CUNY Academic Commons Subcommittee, City University of New York, New York, NY.*
- 2015–2016 **Alternate**, *Committee on Academic Technology (CAT), City University of New York, New York, NY.*
- 2015 **Usability Study Participant**, *Academic Commons, City University of New York, New York, NY.*

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## Professional Activities

- 2018 Reviewer for the IEEE Transactions on Software Engineering (TSE) journal. *See [bit.ly/ieeetse](http://bit.ly/ieeetse).*
- 2018 Program Committee member for the Demonstrations track of the 26<sup>th</sup> ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE'18). *See [bit.ly/fse2018demo](http://bit.ly/fse2018demo).*



- 2015,2018 Google Summer of Code (GSoC) Project Mentor/Coach for the Eclipse Foundation. See [bit.ly/gsoc1](http://bit.ly/gsoc1), [bit.ly/gsoc881](http://bit.ly/gsoc881), and [bit.ly/gsocn20](http://bit.ly/gsocn20).
- 2018 Program Committee member for the 1<sup>st</sup> IEEE International Workshop on Programming Languages Research & Practice (PLRP'18) of the 42<sup>nd</sup> IEEE Computer Society International Conference on Computers, Software & Applications (COMPSAC'18). See [ieeecompsac.computer.org/2018/plrp](http://ieeecompsac.computer.org/2018/plrp).
- 2018 Organizing Committee member for the 2018 International Workshop on API Usage and Evolution (WAPI'18) of the 40<sup>th</sup> International Conference on Software Engineering (ICSE'18). See [w-api.github.io/2018](http://w-api.github.io/2018).
- 2018 Organizing Committee member (Publicity Chair) for the 26<sup>th</sup> ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE'18). See [bit.ly/fse2018](http://bit.ly/fse2018).
- 2016 Session chair for the 2016 International Workshop on Modularity Across the System Stack (MASS'16) of the 15<sup>th</sup> International Conference on Software Modularity (MODULARITY'16).
- 2016 Panelist on Modularity Across the System Stack: Challenges and Opportunities at the 2016 International Workshop on Modularity Across the System Stack (MASS'16) of the 15<sup>th</sup> International Conference on Software Modularity (MODULARITY'16). See [bit.ly/mass16panel](http://bit.ly/mass16panel).
- 2016 Program Committee member for the 2016 International Workshop on Modularity Across the System Stack (MASS'16) of the 15<sup>th</sup> International Conference on Software Modularity (MODULARITY'16). See [2016.modularity.info/track/mass-2016-papers](http://2016.modularity.info/track/mass-2016-papers).
- 2016 Program Committee member for the symposium on Software Engineering Technology and Applications (SETA) of the 40<sup>th</sup> IEEE Computer Society International Conference on Computers, Software & Applications (COMPSAC'16). See [www.computer.org/web/compsac2016/seta2016](http://www.computer.org/web/compsac2016/seta2016).
- 2016 Organizer for the 2016 International Workshop on Language Modularity (LaMod'16) of the 15<sup>th</sup> International Conference on Software Modularity (MODULARITY'16). See [2016.modularity.info/track/LaMOD2016](http://2016.modularity.info/track/LaMOD2016).
- 2016 Program Committee member for the Tool Demonstration and Poster Session tracks of the 15<sup>th</sup> International Conference on Software Modularity (MODULARITY'16). See [2016.modularity.info/track/modularity-2016-demos](http://2016.modularity.info/track/modularity-2016-demos).
- 2016 National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP) Panelist Pool member. See [nsfgrfp.org](http://nsfgrfp.org).
- 2015 Representative for the Eclipse Foundation at the 2015 Google Summer of Code (GSoC) Mentor Summit. See [sites.google.com/site/gsoc2015ms](http://sites.google.com/site/gsoc2015ms).
- Spring 2015, Faculty mentor for the Emerging Scholars Undergraduate Research program. See [bit.ly/merge15](http://bit.ly/merge15),  
 Fall 2015 [bit.ly/merge15b](http://bit.ly/merge15b).
- 2015–2016 Faculty mentor for the Louis Stokes Alliances for Minority Participation (LSAMP) Undergraduate Research program. See [bit.ly/lsamp2015-16](http://bit.ly/lsamp2015-16).
- 2015 Visiting Scholar at Security Lancaster, School of Computing and Communications, Lancaster University, Lancaster, United Kingdom. See [lancaster.ac.uk/security-lancaster](http://lancaster.ac.uk/security-lancaster).
- 2015 Visiting Scholar at the Programming Research Group, Department of Mathematical and Computing Sciences, Tokyo Institute of Technology, Tokyo, Japan. See [prg.is.titech.ac.jp](http://prg.is.titech.ac.jp).
- 2011–2013 Web maintainer for the Aspect-Oriented Software Development research website. See [aosd.net](http://aosd.net).
- 2011 Organizing Committee member (Web Chair) for the European Conference on Object-Oriented Programming (ECOOP'11). See [2011.ecoop.org](http://2011.ecoop.org).
- 2010 Student volunteer at the ACM SIGPLAN/SIGSOFT International Conference on Systems, Programming, Languages, and Applications (SPLASH, formerly OOPSLA), Reno, Nevada, USA.
- 2009,2010 Google Summer of Code Proposed Project Mentor for Eclipse.

- 2008,2009,2010 Secondary reviewer for the IEEE/ACM International Conference on Automated Software Engineering (ASE).
- 2008,2009,2010 Secondary reviewer for the European Conference on Object-Oriented Programming (ECOOP).
- 2009,2010 Secondary reviewer for the International Conference on Aspect-Oriented Software Development (AOSD).
- 2007,2009 Student volunteer at the International Conference on Aspect-Oriented Software Development (AOSD), Vancouver, BC, Canada (2007), Charlottesville, VA, USA (2009).
- 2007,2009 Spring school participant at the International Conference of Aspect-Oriented Software Development (AOSD), Vancouver, BC, Canada (2007), Charlottesville, VA, USA (2009).
- 2008 Secondary reviewer for the 2<sup>nd</sup> Workshop on Assessment of Contemporary Modularization Techniques (ACoM) at the 23<sup>rd</sup> ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA).
- 2007 Textbook reviewer for "Programming with C++ Brief Edition, " D.S. Malik, Cengage Learning, Boston, MA.
- 2007 Participant at the 2<sup>nd</sup> European Summer School on Aspect-Oriented Software Development, Genoa, Italy.
- 2007 Program committee member for the 2<sup>nd</sup> Ohio Graduate Student Symposium on Computer and Information Science & Engineering (OGSS-CISE).
- 2007 Secondary reviewer for the 29<sup>th</sup> International Conference on Software Engineering (ICSE).
- 2004 President and re-establisher, Monmouth University ACM Student Chapter.

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## Presentations

- May 2018 **International Conference on Software Engineering, ICSE '18**, Gothenburg, Sweden.  
Poster on "Towards Safe Refactoring for Intelligent Parallelization of Java 8 Streams." See [bit.ly/icse18streams](http://bit.ly/icse18streams).
- April 2018 **International Conference on the Art, Science, and Engineering of Programming, Programming '18**, Nice, France, Technical research track.  
Presentation on "Proactive Empirical Assessment of New Language Feature Adoption via Automated Refactoring: The Case of Java 8 Default Methods." See [bit.ly/programming2018](http://bit.ly/programming2018).
- December 2017 **IBM Programming Languages Day, PL Day '17**, IBM T.J. Watson Research Center, Yorktown Heights, NY.  
Presentation on "Proactive Empirical Assessment of New Language Feature Adoption via Automated Refactoring: The Case of Java 8 Default Methods." See [bit.ly/ibmpl17](http://bit.ly/ibmpl17).
- November 2017 **New Jersey Programming Languages and Systems Seminar Series, NJPLS '17**, Princeton University, Princeton, NJ.  
Presentation on "Automated Refactoring of Legacy Java Software to Default Methods." See [bit.ly/njpls17](http://bit.ly/njpls17).
- November 2017 **IEEE/ACM International Conference on Automated Software Engineering, ASE '17**, Urbana-Champaign, IL.  
Demonstration, talk, and poster on "Defaultification Refactoring: A Tool for Automatically Converting Java Methods to Default." See [bit.ly/ase2017](http://bit.ly/ase2017).
- May 2017 **International Conference on Software Engineering, ICSE '17**, Buenos Aires, Argentina, Technical research track on refactoring.  
Presentation and poster on "Automated Refactoring of Legacy Java Software to Default Methods." See [bit.ly/icse17default](http://bit.ly/icse17default).
- May 2017 **George Mason University, Department of Computer Science**, Fairfax, VA.  
Presentation on "Automated Refactoring of Legacy Java Software to Default Methods." See [bit.ly/gmurefact](http://bit.ly/gmurefact).

- March 2016 **International Workshop on Language Modularity À La Mode at the 15<sup>th</sup> International Conference on Modularity, LaMOD'16 at MODULARITY'16**, Málaga, Spain.  
Presentation on "Towards Improving Interface Modularity in Legacy Java Software through Automated Refactoring." See [bit.ly/lamod16](http://bit.ly/lamod16).
- March 2016 **New York City College of Technology, City University of New York, Brooklyn, NY.**  
Presentation on "Towards Improving Interface Modularity in Legacy Java Software Through Automated Refactoring." See [bit.ly/nycct-interface](http://bit.ly/nycct-interface).
- December 2015 **Hunter College, City University of New York, New York, NY.**  
Presentation on "Detecting Broken Pointcuts using Structural Commonality and Degree of Interest." See [bit.ly/ase15frag](http://bit.ly/ase15frag).
- November 2015 **IEEE/ACM International Conference on Automated Software Engineering, ASE '15**, Lincoln, NE.  
Presentation on "Detecting Broken Pointcuts using Structural Commonality and Degree of Interest." See [bit.ly/ase15frag](http://bit.ly/ase15frag).
- November 2015 **New York City College of Technology, City University of New York, Brooklyn, NY.**  
Poster on "Automatic Modernization of Legacy Java Software" at the 13<sup>th</sup> Annual Poster Session of Faculty and Student Research and Faculty Publications Exhibit, Faculty Recognition Day. See [bit.ly/facday15](http://bit.ly/facday15).
- October 2015 **ACM SIGPLAN Conference on Systems, Programming, and Applications: Software for Humanity, SPLASH '15**, Pittsburgh, PA.  
Demonstration on "Fraglight: Shedding Light on Broken Pointcuts in Evolving Aspect-Oriented Software." See [bit.ly/splash15demo](http://bit.ly/splash15demo).
- September 2015 **NYC Media Lab 2015 Annual Summit, New York City Media Laboratory, NYU Skirball Center for the Performing Arts, New York, NY.**  
Demonstration on "Fraglight: Shedding Light on Broken Pointcuts in Evolving Aspect-Oriented Software." See [bit.ly/nycmedia15](http://bit.ly/nycmedia15).
- September 2015 **Razorfish Global Technology Summit, New York, NY.**  
Demonstration on "Fraglight: Shedding Light on Broken Pointcuts in Evolving Aspect-Oriented Software." See [bit.ly/razorfish15](http://bit.ly/razorfish15).
- June 2015 **National Science Foundation (NSF)/Department of Defense (DoD) Research Experience for Undergraduates (REU) at College of Staten Island (CSI), City University of New York (CUNY): Computational Methods in High Performance Computing with Applications to Computer Science, Staten Island, NY.**  
Presentation on "Automatic Migration of Legacy Java Method Implementations to Interfaces." See [www.cs.csi.cuny.edu/REU](http://www.cs.csi.cuny.edu/REU).
- June 2015 **Core Software Group, Department of Creative Informatics, Graduate School of Information Science and Technology, The University of Tokyo, Tokyo, Japan.**  
Presentation on "Open Problems in Automatically Refactoring Legacy Java Software to use New Features in Java 8." See [bit.ly/csg2015](http://bit.ly/csg2015).
- June 2015 **Programming Research Group, Department of Mathematical and Computing Sciences, Graduate School of Information Science and Engineering, Tokyo Institute of Technology, Tokyo, Japan.**  
Presentation on "Open Problems in Automatically Refactoring Legacy Java Software to use New Features in Java 8." See [goo.gl/IWqJWw](http://goo.gl/IWqJWw).
- March 2015 **New York City College of Technology, City University of New York, Brooklyn, NY.**  
Presentation on "Introduction to New Features in Java 8." See [bit.ly/java8-intro](http://bit.ly/java8-intro).
- November 2014 **New York City College of Technology, City University of New York, Brooklyn, NY.**  
Poster on "Fraglight: Shedding Light on Broken Pointcuts in Aspect-Oriented Software" at the 12<sup>th</sup> Annual Poster Session of Faculty and Student Research and Faculty Publications Exhibit, Faculty Recognition Day. See [bit.ly/facday](http://bit.ly/facday).

- November 2014 **New York City College of Technology, City University of New York, Brooklyn, NY.**  
Presentation on "Fraglight: Shedding Light on Broken Pointcuts in Evolving Aspect-Oriented Software."  
*See [bit.ly/fraglight](http://bit.ly/fraglight).*
- March 2014 **State University of New York College at Old Westbury, Old Westbury, NY.**  
Presentation on "Techniques for Automated Software Evolution."
- March 2014 **Quinnipiac University, Hamden, CT.**  
Presentation on "Objective-C for Java Developers." *See [bit.ly/obj-c\\_java](http://bit.ly/obj-c_java).*
- February 2014 **Milwaukee School of Engineering, Milwaukee, WI.**  
Presentation on "Objective-C for Java Developers."
- September 2012 **Apple Inc., Cupertino, CA.**  
Presentation on "Unit Testing with Xcode."
- April 2011 **Ohio State University, Columbus, OH.**  
PhD thesis defense on "Techniques for Automated Software Evolution."
- November 2010 **Johns Hopkins University Applied Physics Laboratory (JHU APL), Columbia, Maryland.**  
Presentation on "Techniques for Automated Evolution of Aspect-Oriented Software."
- September 2010 **25<sup>th</sup> IEEE/ACM International Conference on Automated Software Engineering (ASE), Antwerp, Belgium.**  
Tool demonstration, presentation, and poster on "Enumeration Refactoring: A Tool for Automatically Converting Java Constants to Enumerated Types." *See [slidesha.re/enum-tool](http://slidesha.re/enum-tool).*
- August 2010 **Chiba Shigeru Programming Languages and Operating Systems Research Group, Department of Mathematical and Computing Sciences, Graduate School of Information Science and Engineering, Tokyo Institute of Technology, Tokyo, Japan.**  
Presentation on "Future Endeavors in Automated Refactoring of Legacy Java Software to Enumerated Types." *See [slidesha.re/enum-future](http://slidesha.re/enum-future).*
- July 2010 **Principles of Software Languages (POSL) Research Group, Kyushu University, Fukuoka City, Japan.**  
Presentation on "Fraglight: Shedding Light on Broken Pointcuts in Aspect-Oriented Software."
- July 2010 **Computing System Research Group, Graduate School of Arts and Sciences, University of Tokyo, Tokyo, Japan.**  
Presentation on "Pointcut Rejuvenation: Recovering Pointcut Expressions in Evolving Aspect-Oriented Software." *See [slidesha.re/rejuvpc](http://slidesha.re/rejuvpc).*
- June 2010 **Japan Society for the Promotion of Science (JSPS) Summer Program Research Proposal Session, The Graduate University for Advanced Studies (Sokendai), Hayama, Japan.**  
Poster on "Fraglight: Shedding Light on Broken Pointcuts in Aspect-Oriented Software."
- November 2009 **24<sup>th</sup> IEEE/ACM International Conference on Automated Software Engineering (ASE), Auckland, New Zealand.**  
Poster on "Pointcut Rejuvenation: Recovering Pointcut Expressions in Evolving Aspect-Oriented Software."
- November 2009 **5<sup>th</sup> Asian Workshop on Aspect-Oriented and Modular Software Development (AOAsia) at the 24<sup>th</sup> International Conference on Automated Software Engineering (ASE), Auckland, New Zealand.**  
Presentation on "Specifying Reusable Aspects." *See [slidesha.re/reuse-aop](http://slidesha.re/reuse-aop).*
- March 2009 **8<sup>th</sup> International Conference on Aspect-Oriented Software Development (AOSD), Charlottesville, VA.**  
Invited tool demonstration of "Rejuvenate Pointcut: A Tool for Pointcut Expression Recovery in Evolving Aspect-Oriented Software." *See [slidesha.re/aosd09](http://slidesha.re/aosd09).*
- March 2009 **8<sup>th</sup> International Conference on Aspect-Oriented Software Development (AOSD), Charlottesville, VA.**  
Poster on "Enforcing Behavioral Constraints in Evolving Aspect-Oriented Programs."

- October 2008 **2<sup>nd</sup> International Workshop on Assessment of Contemporary Modularization Techniques (ACoM) at the 23<sup>rd</sup> ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)**, Nashville, Tennessee.  
Presentation on “On the Assessment of Pointcut Design in Evolving Aspect-Oriented Software.” See [slidesha.re/pc-des](https://slidesha.re/pc-des).
- September 2008 **8<sup>th</sup> IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM)**, Beijing, China.  
Tool demonstration on “Rejuvenate Pointcut: A Tool for Pointcut Expression Recovery in Evolving Aspect-Oriented Software.” See [slidesha.re/rejuvpc-tool](https://slidesha.re/rejuvpc-tool).
- April 2008 **7<sup>th</sup> International Conference on Aspect-Oriented Software Development (AOSD)**, Brussels, Belgium.  
Poster on “Pointcut Rejuvenation: Recovering Pointcut Expressions in Evolving Aspect-Oriented Software.”
- April 2008 **7<sup>th</sup> International Workshop on Foundations of Aspect-Oriented Languages (FOAL) at the 7<sup>th</sup> International Conference on Aspect-Oriented Software Development (AOSD)**, Brussels, Belgium.  
Presentation on “Enforcing Behavioral Constraints in Evolving Aspect-Oriented Programs.” See [slidesha.re/aop-beh](https://slidesha.re/aop-beh).
- March 2008 **Computing Department, Lancaster University, Lancaster, UK.**  
Computing’s Advanced Knowledge Extension Seminars (CAKES) presentation on “Rely, Guarantee, Enrich: An Approach to Modular Reasoning About Aspect-Oriented Programs.”
- October 2007 **23<sup>rd</sup> IEEE International Conference on Software Maintenance (ICSM)**, Paris, France.  
Presentation on “Automated Refactoring of Legacy Java Software to Enumerated Types.” See [slidesha.re/enum-refact](https://slidesha.re/enum-refact).
- August 2007 **Bell Laboratories, Alcatel-Lucent, Murray Hill, NJ.**  
Summer intern presentation on an “Overview of a Session Data Type (SDT) Framework Research Prototype.”
- July 2007 **2<sup>nd</sup> European Summer School on Aspect-Oriented Software Development**, Department of Informatics and Information Science (DISI), University of Genoa, Italy.  
Led group discussion and displayed a poster on current progress of “Modular Reasoning about Aspect-Oriented Programs: A Rely-Guarantee Approach.”
- April 2007 **Ohio Graduate Student Symposium on Computer and Information Science & Engineering (OGSS-CISE)**, University of Cincinnati, Cincinnati, OH, USA.  
Presentation on “Modular Reasoning about Aspect-Oriented Programs: A Rely-Guarantee Approach.” See [slidesha.re/ogss-cise](https://slidesha.re/ogss-cise).
- March 2007 **5<sup>th</sup> International Workshop on Software Engineering Properties of Languages and Aspect Technologies (SPLAT) at the 6<sup>th</sup> International Conference on Aspect-Oriented Software Development (AOSD)**, Vancouver, BC, Canada.  
Presentation on “Rely-Guarantee Approach to Reasoning about Aspect-Oriented Programs.” See [slidesha.re/rg-aop](https://slidesha.re/rg-aop).

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## Students Advised

### Current Research Students

#### Graduate

|       |                |  |
|-------|----------------|--|
| 2018– | Harun Iftikhar | PhD 2023, CUNY Graduate Center Half Science Fellow |
| 2018– | Oren Friedman  | MA 2019, Google Summer of Code participant         |
| 2017– | Yiming Tang    | PhD 2022, CUNY Graduate Center Full Science Fellow |

#### Undergraduate

|       |                |                     |
|-------|----------------|---------------------|
| 2018– | Brandon Golden | BA 2018, CUNY Codes |
|-------|----------------|---------------------|

## Past Research Students

### *Undergraduate*

|           |               |  |
|-----------|---------------|--|
| 2016–2017 | David Morant  | <i>BA 2017, Undergraduate Research Initiative Fellow, now Android Developer at touchlab Inc.</i>   |
| 2016      | Walter Rada   | <i>BTech 2015, now Data Network Production Support Analyst Intern at TD Ameritrade</i>   |
| 2015–2016 | Olivia Moore  | <i>BTech 2016, NSF LSAMP scholar, now ServiceNow System Administrator/Developer at Oak Hill Advisors, L.P.</i>                               |
| 2015      | Md. Arefin    | <i>BTech 2016, Google Summer of Code, Emerging Scholar, 2016 valedictorian, now Technology Full-time Analyst at JPMorgan Chase &amp; Co.</i> |
| 2015      | Egor Kozitski | <i>BTech, Emerging Scholar, now Software Engineer at HLX Studios</i>   |

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## Professional Affiliations

|         |  |
|---------|--|
| JSPS US | Regular Member, Japan Society for the Promotion of Science (JSPS) US Alumni Association. |
| ACM     | Member, Association for Computing Machinery.   |
| SIGPLAN | Member, ACM Special Interest Group for Programming Languages.                            |
| SIGSOFT | Member, ACM Special Interest Group on Software Engineering.                              |

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## Volunteering

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|------------|---|
| June 2015– | <b>Worship Arts Team Member</b> , <i>Journey Church New York City, New York, NY.</i>  |
| 2014–2015  | <b>Technology Volunteer</b> , <i>Learning Disabilities Association, New York, NY.</i> |
| 2012–2014  | <b>Technology Volunteer</b> , <i>Journey Church San Francisco, San Francisco, CA.</i> |