

Raffi Khatchadourian

Assistant Professor—Computer Science

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Objective

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

Interests

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

Experience

2014– **Assistant Professor**, *City University of New York (CUNY)*, New York, NY.

Computer Science, Hunter College (August 2016–). *Courses taught*: Programming Languages (CSCI 46000/79521), Software Engineering (CSCI 40500/77100), Software Analysis & Design I (CSCI 13500), Advanced Applications: a Capstone for Majors (CSCI 49900), Programming Projects Seminar for Minors (CSCI 23300). Lecturing, grading, online course content administration, weekly office hours, course coordination, and peer observation. *Committees*: Women in Computer Science at Hunter College (WICS-HC) in collaboration with the National Center for Women & Information Technology (NCWIT).

Computer Science, Graduate Center (December 2016–). *Courses taught*: Software Analysis & Transformation (CSc 81020). Doctoral student supervision, mentoring, and advising. Colloquia speaker recruiting. Computer Systems Technology, New York City College of Technology (August 2014–July 2016). *Courses taught*: Problem Solving with Computer Programming (CST 1101), Programming Fundamentals (CST 1201), Multimedia and Mobile Device Programming (CST 2301), Dynamic Web Development (CST 4713). Lecturing, grading, lab instruction, online course content administration, advising, weekly office hours, and peer observation. *Committees*: CUNY Committee on Academic Technology (CUNY-CAT), CUNY-CAT subcommittee on the CUNY Academic Commons, Curriculum, Colloquium, Assessment, and Recruitment. Speaker scheduling and coordination, website creation and maintenance, event promotion.

2011–2014 **Software Engineer**, *Apple Inc.*, Cupertino, CA.

Digital Rights Management (DRM) (June 2012–August 2014). Security and content protection for iTunes, iTunes store, iBooks, and App store. Performance analysis and tuning of server-side iTunes store operations and client-side transactions. Secure content key and credentials management and concurrency features for client-side iTunes. Design, development, and documentation of secure purchase receipt/certification for content purchased in Mac OS X and iOS app stores. Fraud prevention.

Hardware Test Engineering for iPhone, iPad, and iPod Engineering (April 2011–May 2012). Designed, implemented, and maintained software in Python and Objective-C for automated hardware testing of mobile devices. Devised test plans and architected distributed hardware test software. Performed peer code reviews, mentored team members including interns, and lead weekly software discussion meetings. Implemented factory test automation process control and data analysis software.

- 2005–2011 **Graduate Teaching and Research Associate**, *Department of Computer Science & Engineering, Ohio State University*, Columbus, OH, Advisors: N. Soundarajan/A. Rountev.
Static analysis, type theory, formal program reasoning, verification, and specification. *Courses taught*: Introduction to Programming and Algorithms for Engineers and Scientists (CS&E 202), Introduction to C++ Programming (CS&E 230). Lecturing, lesson planning, lab instruction, exam design, online course content administration, weekly office hours, instructional video and audio production. 2010 Outstanding Departmental Graduate Student Teaching (Eleanor Quinlan Memorial) Award.
- 2010 **Visiting Scholar**, *Programming Principles and Practices (PPP) Group, Department of Graphics and Computer Science, University of Tokyo*, Tokyo, Japan, Supervisor: H. Masuhara.
Program change prediction and code completion.
- 2008 **Visiting Scholar**, *Aspect-Oriented Software Engineering Group, Department of Computing, Lancaster University*, Lancaster, UK, Supervisor: A. Rashid.
Software artifact traceability to support automated source code evolution.
- 2007 **Member of Technical Staff**, *Computer Sciences Research Center, Bell Laboratories, Alcatel-Lucent*, Murray Hill, NJ, Supervisor: R. Hull.
Program language design for shared experience, multi-media, multi-protocol, event-driven applications.
- 2004–2005 **Software Engineer**, *State of New Jersey Office of Information Technology*, Trenton, NJ.
Developed J2EE architecture for the New Jersey Insurance Surcharge System, a multi-level client, high-volume transactional system. Created Object-Oriented design and stored procedures for Oracle RDBMS.
- 2003–2004 **UNIX Systems Administrator**, *Integrated Medical Care*, Toms River, NJ.
Created and administered network for web authoring. Administered and configured web servers, Java application containers, source code repository, RDBMS (MySQL), and windows clients using samba.

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. Safe automated refactoring for intelligent parallelization of Java 8 streams. In *International Conference on Software Engineering*, ICSE '19. ACM/IEEE, ACM, May 2019. Technical Track. (109/529; 20.6% acceptance rate). To appear.

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, pages 34–39. IEEE, IEEE Press, September 2018. Engineering Track. (9/17; 53% acceptance rate). **Distinguished Paper Award**.

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.

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
- 2018 Japan Society for the Promotion of Science (JSPS) US Alumni Association (AA) Seminar Program grant recipient as principal investigator (\$3,839.50 US). *New York Seminar on Programming Languages and Software Engineering*. See bit.ly/jspss-seminar
- 2017–(2022) Women in Technology and Entrepreneurship in New York (WiTNY) Grant recipient as co-principal investigator (\$25,000 US, renewable up to five years for a total of \$125,000 US). *Project Khaleesi—Mentoring Tomorrow’s Cybersecurity Queen of Dragons*. See tech.cornell.edu/impact/witny
- 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

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 CUNY Diversity Projects Development Fund (DPDF) Grant Recipient as sole investigator (\$5,000 US). *Design for a Cloud-based Java IDE for Teaching Minorities*.
- 2015 CUNY New York City College of Technology Open Educational Resources (OER) Initiative Fellowship Recipient (23 hours at the 60% non-teaching adjunct faculty rate).

Awards

Research Awards

External

- 2018 IEEE International Working Conference on Source Code Analysis & Manipulation (SCAM '18) Distinguished Paper Award Recipient.
- 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*
- 2007 Visiting Studentship in Aspect-Oriented Software Analysis and Design, Computing Department, Lancaster University, UK (£8,000).

Internal

- 2017 CUNY Hunter College 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.

Travel Awards

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

Teaching

Open Educational Resources (OERs)

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

Instructional Experience

Graduate

Spring 2019 **Instructor**, *CSCI 79521: Advanced Programming Languages*, Department of Computer Science, CUNY Hunter College.
Combined with CSCI 46000.

Fall 2018 **Instructor**, *CSCI 77100: Contemporary Application Development*, Department of Computer Science, CUNY Hunter College.
Combined with CSCI 40500.

Spring 2018 **Instructor**, *CSc 81020: Software Analysis & Transformation*, Department of Computer Science, CUNY Graduate Center.

Undergraduate

Spring 2019 **Instructor**, *CSCI 46000: Advanced Programming Languages*, Department of Computer Science, CUNY Hunter College.
Combined with CSCI 79521.

Spring 2017, Fall 2018 **Instructor**, *CSCI 40500: Software Engineering*, Department of Computer Science, CUNY Hunter College.
Combined with CSCI 77100.

Fall 2016, Fall 2018 **Instructor**, *CSCI 49900: Advanced Applications: A Capstone for Majors*, Department of Computer Science, CUNY Hunter College.

Spring 2017, Fall 2017 **Instructor**, *CSCI 13500: Software Analysis and Design I*, Department of Computer Science, CUNY Hunter College.

Fall 2016 **Instructor**, *CSCI 23300: Programming Projects Seminar for Minors*, Department of Computer Science, CUNY Hunter College.

Spring 2016 **Instructor**, *CST 4713: Dynamic Web Development*, Department of Computer Systems Technology, CUNY New York City College of Technology.

2014–2016 (4) **Instructor**, *CST 1201: Programming Fundamentals*, Department of Computer Systems Technology, CUNY New York City College of Technology.

Spring 2015, Fall 2015 **Instructor**, *CST 2301: Multimedia and Mobile Device Programming*, Department of Computer Systems Technology, CUNY New York City College of Technology.

Fall 2014 **Instructor**, *CST 1101: Problem Solving with Computer Programming*, Department of Computer Systems Technology, CUNY New York City College of Technology.

2005–2011 (12) **Instructor**, *CS&E 230: Introduction to C++ Programming*, Department of Computer Science & Engineering, Ohio State University.

Sp07, Au08, Au09 **Instructor**, *CS&E 202: Introduction to Programming and Algorithms for Engineers and Scientists*, Department of Computer Science & Engineering, Ohio State University.

Spring 2008 **Invited Lecturer**, *Seminar in L^AT_EX 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.

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.*
- 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.*
- 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.*
- 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.*
- 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.*

Computer Skills

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, JMH, OCUit	instruments	R&S CMW 500/CMU 200
building	ant, make, Xcode	administration	Apache, Samba, iptables
OS	Mac OS X, Linux, UNIX	typography	ℒ _T E _X
web	JSF, JBoss Seam, Drupal, WordPress	database	SQL, Postgresql, MySQL, Oracle

Academic Service

Departmental Service

- 2019– **Computer Science Department Delegate**, *Faculty Delegate Assembly, CUNY Hunter College, New York, NY.*
- 2018 **Organizer**, *Hunter College Cybersecurity Summer Camp for female non-CS majors, Department of Computer Science, CUNY Hunter College, New York, NY.*
- 2018 **Member**, *Lecturer Search Committee, Department of Computer Science, CUNY Hunter College, New York, NY.*
- 2018 **Member**, *Admissions Committee, Department of Computer Science, CUNY Graduate Center, New York, NY.*
- 2017 **Member**, *Grade Appeal Committee, Department of Computer Science, CUNY Hunter College, 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, CUNY Hunter College, New York, NY.*
- 2015–2016 **Member**, *Curriculum Committee, Department of Computer Systems Technology, CUNY New York City College of Technology, Brooklyn, NY.*
- 2014–2016 **Chair**, *Colloquium Committee, Department of Computer Systems Technology, CUNY New York City College of Technology, Brooklyn, NY.*

- 2015–2016 **Secretary**, *Department of Computer Systems Technology, CUNY New York City College of Technology*, Brooklyn, NY.
- 2015 **Department Mobile Application Coordinator**, *Computer Information Association, Department of Computer Systems Technology, CUNY New York City College of Technology*, Brooklyn, NY.
- 2015 **Interviewer**, *Computer Information Association, Department of Computer Systems Technology, CUNY New York City College of Technology*, Brooklyn, NY.
- 2014–2015 **Member**, *Assessment Committee, Department of Computer Systems Technology, CUNY New York City College of Technology*, Brooklyn, NY.
- 2014– **Member**, *Recruitment Committee, Department of Computer Systems Technology, CUNY New York City College of Technology*, 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, CUNY New York City College of Technology*, Brooklyn, NY.
- 2015,Fall **Panelist**, *“Using Open Educational Resources (OER) in the Classroom,” CUNY New York City College of Technology*, Brooklyn, NY.
- 2015 **New Faculty Orientation Participant**, *CUNY New York City College of Technology*, Brooklyn, NY.
- 2015 **Usability Study Participant**, *OpenLab, CUNY New York City College of Technology*, New York, NY.
- 2015 **Software Engineering Consultant**, *CUNY New York City College of Technology*, 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, CUNY New York City College of Technology*, Brooklyn, NY.

University Service

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

Professional Activities

- 2018 Judge for the ACM Student Research Competition (SRC) track of the 26th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE'18). *See bit.ly/fse18src*.
- 2018 Reviewer for the IEEE Transactions on Software Engineering (TSE) journal. *See bit.ly/ieeetse*.
- 2018 Reviewer for Information and Software Technology (IST) journal. *See bit.ly/ist-journal*.
- 2018 Reviewer for PLOS ONE journal. *See journals.plos.org/plosone*.
- 2018 Program Committee member for the Demonstrations track of the 26th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE'18). *See bit.ly/fse2018demo*.

- 2015,2018 Google Summer of Code (GSoC) Project Mentor/Coach for the Eclipse Foundation. See bit.ly/gsoc1, bit.ly/gsoc881, and bit.ly/gsocn20.
- 2018 Program Committee member for the 1st IEEE International Workshop on Programming Languages Research & Practice (PLRP'18) of the 42nd IEEE Computer Society International Conference on Computers, Software & Applications (COMPSAC'18). See ieeecompsac.computer.org/2018/plrp.
- 2018 Organizing Committee member for the 2018 International Workshop on API Usage and Evolution (WAPI'18) of the 40th International Conference on Software Engineering (ICSE'18). See w-api.github.io/2018.
- 2018 Organizing Committee member (Publicity Chair) for the 26th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE'18). See bit.ly/fse2018.
- 2016 Session chair for the 2016 International Workshop on Modularity Across the System Stack (MASS'16) of the 15th 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 15th International Conference on Software Modularity (MODULARITY'16). See bit.ly/mass16panel.
- 2016 Program Committee member for the 2016 International Workshop on Modularity Across the System Stack (MASS'16) of the 15th International Conference on Software Modularity (MODULARITY'16). See 2016.modularity.info/track/mass-2016-papers.
- 2016 Program Committee member for the symposium on Software Engineering Technology and Applications (SETA) of the 40th IEEE Computer Society International Conference on Computers, Software & Applications (COMPSAC'16). See www.computer.org/web/compsac2016/seta2016.
- 2016 Organizer for the 2016 International Workshop on Language Modularity (LaMod'16) of the 15th International Conference on Software Modularity (MODULARITY'16). See 2016.modularity.info/track/LaMOD2016.
- 2016 Program Committee member for the Tool Demonstration and Poster Session tracks of the 15th International Conference on Software Modularity (MODULARITY'16). See 2016.modularity.info/track/modularity-2016-demos.
- 2016 National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP) Panelist Pool member. See nsfgrfp.org.
- 2015 Representative for the Eclipse Foundation at the 2015 Google Summer of Code (GSoC) Mentor Summit. See sites.google.com/site/gsoc2015ms.
- Spring 2015, Faculty mentor for the Emerging Scholars Undergraduate Research program. See bit.ly/emerge15,
 Fall 2015 bit.ly/emerge15b.
- 2015–2016 Faculty mentor for the Louis Stokes Alliances for Minority Participation (LSAMP) Undergraduate Research program. See 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.
- 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.
- 2011–2013 Web maintainer for the Aspect-Oriented Software Development research website. See aosd.net.
- 2011 Organizing Committee member (Web Chair) for the European Conference on Object-Oriented Programming (ECOOP'11). See 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 2nd Workshop on Assessment of Contemporary Modularization Techniques (ACoM) at the 23rd 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 2nd European Summer School on Aspect-Oriented Software Development, Genoa, Italy.
- 2007 Program committee member for the 2nd Ohio Graduate Student Symposium on Computer and Information Science & Engineering (OGSS-CISE).
- 2007 Secondary reviewer for the 29th International Conference on Software Engineering (ICSE).
- 2004 President and re-establisher, Monmouth University ACM Student Chapter.

Presentations

- November 2018 **Denison University**, *Department of Mathematics and Computer Science*, Granville, OH.
Presentation on "Safe Automated Refactoring for Intelligent Parallelization of Java 8 Streams."
- September 2018 **IEEE International Working Conference on Source Code Analysis & Manipulation, SCAM '18**, Madrid, Spain.
Presentation on "A Tool for Optimizing Java 8 Stream Software via Automated Refactoring." See bit.ly/scam18streams.
- 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.
- 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.
- 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.
- 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.
- 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.

- 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.
- 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.
- March 2016 **International Workshop on Language Modularity À La Mode at the 15th 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.
- March 2016 **CUNY New York City College of Technology, Brooklyn, NY.**
Presentation on "Towards Improving Interface Modularity in Legacy Java Software Through Automated Refactoring." See bit.ly/nycct-interface.
- December 2015 **CUNY Hunter College, New York, NY.**
Presentation on "Detecting Broken Pointcuts using Structural Commonality and Degree of Interest." See 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.
- November 2015 **CUNY New York City College of Technology, Brooklyn, NY.**
Poster on "Automatic Modernization of Legacy Java Software" at the 13th Annual Poster Session of Faculty and Student Research and Faculty Publications Exhibit, Faculty Recognition Day. See 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.
- 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.
- 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.
- June 2015 **National Science Foundation (NSF)/Department of Defense (DoD) Research Experience for Undergraduates (REU) at CUNY College of Staten Island: 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.
- 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.
- 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.

- March 2015 **CUNY New York City College of Technology, Brooklyn, NY.**
Presentation on "Introduction to New Features in Java 8." See bit.ly/java8-intro.
- November 2014 **CUNY New York City College of Technology, Brooklyn, NY.**
Poster on "Fraglight: Shedding Light on Broken Pointcuts in Aspect-Oriented Software" at the 12th Annual Poster Session of Faculty and Student Research and Faculty Publications Exhibit, Faculty Recognition Day. See bit.ly/facday.
- November 2014 **CUNY New York City College of Technology, Brooklyn, NY.**
Presentation on "Fraglight: Shedding Light on Broken Pointcuts in Evolving Aspect-Oriented Software." See 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.
- 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 **25th 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.
- 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.
- 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.
- 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 **24th 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 **5th Asian Workshop on Aspect-Oriented and Modular Software Development (AOAsia) at the 24th International Conference on Automated Software Engineering (ASE), Auckland, New Zealand.**
Presentation on "Specifying Reusable Aspects." See slidesha.re/reuse-aop.

- March 2009 **8th 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.
- March 2009 **8th International Conference on Aspect-Oriented Software Development (AOSD)**, *Charlottesville, VA*.
Poster on "Enforcing Behavioral Constraints in Evolving Aspect-Oriented Programs."
- October 2008 **2nd International Workshop on Assessment of Contemporary Modularization Techniques (ACoM) at the 23rd 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.
- September 2008 **8th 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.
- April 2008 **7th International Conference on Aspect-Oriented Software Development (AOSD)**, *Brussels, Belgium*.
Poster on "Pointcut Rejuvenation: Recovering Pointcut Expressions in Evolving Aspect-Oriented Software."
- April 2008 **7th International Workshop on Foundations of Aspect-Oriented Languages (FOAL) at the 7th 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.
- 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 **23rd 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.
- 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 **2nd 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.
- March 2007 **5th International Workshop on Software Engineering Properties of Languages and Aspect Technologies (SPLAT) at the 6th 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.

Students Advised

Current Research Students

2018– Walee Ahmed

BA 2019

2018– Oren Friedman *MA 2019, Google Summer of Code participant*
2017– Yiming Tang *PhD 2022, CUNY Graduate Center Full Science Fellow*

Past Research Students

2016–2017 David Morant *BA 2017, Undergraduate Research Initiative Fellow, now Software Engineer at New York Times*
2016 Walter Rada *BTech 2015, now Network Engineer at TD Ameritrade*
2015–2016 Olivia Moore *BTech 2016, NSF LSAMP scholar, now Process Improvement Engineer at New York Foundling*
2015 Md. Arefin *BTech 2016, Google Summer of Code, Emerging Scholar, 2016 valedictorian, now Software Engineer at J.P. Morgan*
2015 Egor Kozitski *BTech, Emerging Scholar, now Software Engineer at AD/FIN*

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.
IEEE-CS Member, IEEE Computer Society.

Volunteering

June 2015– **Worship Arts Team Member**, *Journey Church New York City*, New York, NY.
2014–2015 **Technology Volunteer**, *Learning Disabilities Association*, New York, NY.
2012–2014 **Technology Volunteer**, *Journey Church San Francisco*, San Francisco, CA.