

# Yucheng Zhang

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## CONTACT INFORMATION

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## EDUCATION

**The University of British Columbia** (UBC), Vancouver, British Columbia, Canada

MASc. in Computer Engineering 9/2014 – Present

- Advisor: Dr. [Ali Mesbah](#)
- GPA: 4.0/4.33

**The University of British Columbia** (UBC), Vancouver, British Columbia, Canada

B.Sc. in Computer Science and Statistics 9/2009 – 5/2014

- GPA: 3.85/4.33

**University of Waterloo**, Ontario, Canada

Mathematics/Business Honors (Transfer Credit) 9/2008 – 12/2008

## AWARDS AND HONORS

- ACM SIGSOFT Grant 2015
- Graduate student travel fund of University of British Columbia 2015
- University of British Columbia President's Entrance Scholarship 2009
- University of Waterloo President's Scholarship 2008

## RESEARCH EXPERIENCE

**Research Assistant**, The University of British Columbia, Vancouver, British Columbia, Canada  
Sep 2014 – Present

Advisor: Dr. Ali Mesbah

### Assertions Are Strongly correlated With Test Suite Effectiveness

- Designed and conducted controlled experiments to verify the influence of assertions on test suite effectiveness from three different angles: assertion quantity, assertion coverage, and assertion types.
- Built an infrastructure to automatically compose test suites of target properties and executed through mutation testing.
- Statistically analyzed the experiment results by using correlations, significant tests, and analysis of variance.
- Published one research paper at **ESEC/FSE 2015**.

### Why Assertion Types Influence Test Suite Effectiveness

- Customized PIT (a very popular mutation testing tool) to collect mapping information between test assertions and detectable mutants.
- Built an infrastructure to automatically collect assertion related properties, such as assertion content types, direct/indirect assertion coverage, assertion density, cyclomatic complexity, and etc.
- Study and make understanding of the experiment result from different angles, ex: relationship between assertions content types and mutation operators

## PUBLICATIONS

- [1] **Assertions Are Strongly Correlated With Test Suite Effectiveness**

Yucheng Zhang and Ali Mesbah

*In Proc. the 10th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE 2015)*. Bergamo, Italy. (Acceptance Rate: 25.4%)

ACADEMIC ACTIVITIES	<b>Conference Talks</b> <ul style="list-style-type: none"> <li>• Assertions Are Strongly Correlated With Test Suite Effectiveness ACM SIGSOFT Symposium on the Foundations of Software Engineering (FSE 2015)</li> </ul>	
TEACHING EXPERIENCE	<b>Teaching Assistant</b> , The University of British Columbia <ul style="list-style-type: none"> <li>• Economic Analysis of Engineering Projects (CPEN 481 ) 1/2016 – Present</li> <li>• Software Testing (CPEN 422) 9/2015 – 12/2015</li> <li>• Introduction to Probability (Math 302) 1/2014 – 5/2014</li> <li>• Applied Linear Algebra (Math 307) 9/2013 – 12/2013</li> <li>• Differential Calculus with Physical Applications (Math 180) 9/2013 – 12/2013</li> </ul>	
WORKING EXPERIENCE	<b>Samsung Research America (SRA)</b> , Mountain View, CA, USA 5/2015 – 9/2015 Software Engineer Intern <ul style="list-style-type: none"> <li>• Supervisor: Bruce Hoenig, David Paquet</li> <li>• Designed and maintained a database for the GPU research team based on complex design requirements.</li> <li>• Analyzed and visualized data generated by various processes of the Advanced Processor Lab to provide insights on user volume consumption, job delays, etc.</li> <li>• Implemented a team profile management tool which are now being used by the entire Advanced Processor Lab.</li> </ul> <b>NEXSM Inc.</b> , Vancouver, British Columbia, Canada 6/2014 – 7/2014 Database Management and Web Developer <ul style="list-style-type: none"> <li>• Independently designed and implemented a social media application.</li> </ul> <b>School of Music, The University of British Columbia</b> , Canada 5/2015 – 8/2013 Database Management and Web Developer Assistant <ul style="list-style-type: none"> <li>• Independently designed and implemented a student information management and practice room hours booking system.</li> <li>• Designed and implemented database of the application.</li> <li>• Configured and deployed the application on a Redhat Linux server.</li> <li>• The application is currently being used by school of music and their students.</li> </ul> <b>Gumstix Research (Canada) Ltd.</b> , Vancouver, BC, Canada 1/2012 – 8/2012 Software Engineer <ul style="list-style-type: none"> <li>• Refactored the webERP company management system and osCommerce online store using Symfony2 as framework, Doctrine as database management tool, and Twig as template.</li> <li>• Independently developed a product selector tool using JavaScript and DOJO to make it easier for customers to understand and select their desired products.</li> <li>• Improved and added new features to the existing web application as required by customers.</li> <li>• Assisted system admin in implementing auto application installer using Python.</li> </ul>	
TECHNICAL SKILLS	<ul style="list-style-type: none"> <li>• <i>Programming Languages</i>: Java, C++, C, PHP, JavaScript, Python, HTML, SQL, CSS</li> <li>• <i>Develop Environments</i>: Eclipse, Visual Studio, IntelliJ, gcc</li> <li>• <i>Specialty</i>: Algorithm Design, Software Testing, Full-Stack Web Development, Data Analysis and Modeling</li> </ul>	
ACTIVITIES AND INTERESTS	<ul style="list-style-type: none"> <li>• Accepted professional violin training for 10+ years, and achieved Level 9 (<b>the highest technical level</b> issued by Chinese Musicians' Association) at the age of 15</li> <li>• First prize of provincial competition of Go</li> <li>• Won the Euclid Mathematics Contest at Waterloo in 2008</li> <li>• Making handcrafts including beading, knitting and crocheting</li> </ul>	