

Nicholas NELSON

PhD Student, Computer Science | Software Developer

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2500 NW Monroe Avenue, Corvallis, Oregon 97331, USA



PhD student in Computer Science focusing on software engineering (SE), human-computer interaction (HCI), user interfaces, and developer tools. I am exploring the effects of human problem-solving processes on the use of integrated development environments (IDEs). I also conduct research into software development processes such as merge conflicts, continuous integration (CI), and test-driven development (TDD). I have experience using TypeScript, Java, CSS, C/C++, SQL, Python, PHP, JSON, and R.

EDUCATION

- 2015–Current **Ph.D** in Computer Science at Oregon State University (Advisor: Anita Sarma)
- 2015 **B.S.** in Computer Science at Oregon State University (Minor: Business & Entrepreneurship)
- 2008 **A.S.** in Computer Information Systems at Portland Community College
- 2008 **A.S.** in General Studies at Portland Community College
- 2003 **H.S. Diploma** at South Albany High School

EMPLOYMENT

- Present**
September 2015 **Graduate Research & Teaching Assistant, OREGON STATE UNIVERSITY, USA**
 - Developed architecture and platform for a highly-configurable context-oriented IDE.
 - Conducted empirical research into cognitive processes of problem-solving and context management during software development.
 - Conducted research into developer perceptions of software merge conflict processes and tools.
 - Developed IntelliJ Idea plugin to analyze and refactor Android Java code written for API 6/7 security to use API 8 runtime permissions.
 - Assisted with research into developer perceptions of Continuous Integration (CI) practices and tools.
 - Reviewed submitted manuscripts for prominent software engineering conferences.

Typescript Javascrpt React Redux jQuery CSS NodeJS LaTeX IntelliJ Idea Git Maven Gradle Groovy

Android Studio Android 8 API TravisCI Jenkins JSON R RStudio Haskell Idris Prolog
- September 2019**
June 2019 **Research Intern – Program Synthesis, MICROSOFT CORPORATION, USA**
 - Developed an interactive grid component for tabular data in JupyterLab interactive notebooks.
 - Combined program synthesis by example techniques for interactive data analysis and formatting.
 - Evaluated ambient data understanding of the grid component through empirical user studies.

Typescript React Python JupyterLab CSS Visual Studio Code
- September 2015**
March 2014 **Undergraduate Research Assistant, OREGON STATE UNIVERSITY, USA**
 - Member of Change-Oriented Programming Environment (COPE) research group.
 - Assisted with research into predictive code analysis and visualization of Test-Driven Development (TDD) developer processes.

Java IntelliJ Idea Git Maven LaTeX Eclipse R RStudio Ninja Framework Ruby Python XML
- March 2014**
September 2013 **Undergraduate Teaching Assistant, OREGON STATE UNIVERSITY, USA**
 - Instructed recitation labs for 30–40 freshman and sophomore computer science students enrolled in Computer Science Orientation (CS160), Introduction to Computer Science I (CS161), and Introduction to Computer Science II (CS162) courses.
 - Developed training and evaluation material for new teaching assistants.

Python Java C/C++ PyCharm IntelliJ Idea
- September 2013**
June 2013 **Process Engineering Intern, HEWLETT PACKARD ENTERPRISE, USA**
 - Member of PPS - Inkjet High-Speed Production Solutions (IHPS) division.
 - Designed, proposed, and implemented warranty processing and validation code for HP Web Press consumable products.
 - Integrated file code with HP Web Press Dashboard web applications.

Python PHP Perl Bash

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| December 2012 April 2010 | System Analyst I, SAMARITAN HEALTH SERVICES, USA <ul style="list-style-type: none"> > Member of Information Services (IS) division. > Provided technical support, evaluation, deployment, maintenance, project management, and sunset strategizing for 85 enterprise software applications. > Maintained primary application support for 30 enterprise applications, including 24/7 support during on-call rotations. <div> Oracle SQL MySQL PostgreSQL Microsoft Windows Server Bomgar Remote Access Schlage Lock Control Software ViewPAK Boiler System Microsoft SharePoint Microsoft Active Directory </div> |
| April 2010 July 2008 | Help Desk Analyst, SAMARITAN HEALTH SERVICES, USA <ul style="list-style-type: none"> > Member of Information Services (IS) division. > Provided technical support for 7,000 healthcare employees. > Maintained a 99% yearly customer satisfaction rating. > Answered 13,000 phone calls and 7,000 support emails per year. <div> BMC Remedy Service Management Polycom Teleconference LogMeIn Remote Control </div> |
| July 2008 October 2007 | UNIX Server Operations Intern, INTEL CORPORATION, USA <ul style="list-style-type: none"> > Developed interactive web applications for server systems rack polling and management. > Supported 6,000 production and test UNIX/Linux servers in active use by engineers and developers. > Maintained operational security for 700 highly secure hardened UNIX/Linux servers co-located in secure global facilities. <div> ColdFusion PHP Java Python Perl </div> |
| October 2007 May 2007 | Engineering Computing Support Intern, INTEL CORPORATION, USA <ul style="list-style-type: none"> > Provided technical support for 19,000 Engineering and Product Development employees. > Supported 160+ enterprise software products across 14 different global sites. > Developed SQL queries and reports for weekly and monthly support statistics. <div> BMC Remedy Service Management TrueWindow Remote Access Control Microsoft Active Directory </div> |

PEER-REVIEWED PUBLICATIONS

* co-first author.

- [9] Souti Chattopadhyay, **Nicholas Nelson**, Audrey Au, Natalia Morales, Christopher Sanchez, Rahul Pandita, and Anita Sarma. *Tale from the Trenches: Cognitive Biases and Software Development*. Proceedings of the ACM/IEEE International Conference on Software Engineering (ICSE'20), May 2020. Acceptance ratio: 20.9% (129/617).
- [8] Souti Chattopadhyay, **Nicholas Nelson**, Yenifer Ramirez Gonzalez, Annel Amelia Leon, Rahul Pandita, and Anita Sarma. *Latent Patterns in Activities: A Field Study of How Developers Manage Context*. Proceedings of the ACM/IEEE International Conference on Software Engineering (ICSE'19), May 2019. Acceptance ratio: 20.6% (109/529).
- [7] **Nicholas Nelson**, Caius Brindescu, Shane McKee, Anita Sarma, and Danny Dig. *The Life-Cycle of Merge Conflicts: Processes, Barriers, and Strategies*. Empirical Software Engineering Journal (EMSE), February 2019.
- [6] Souti Chattopadhyay, **Nicholas Nelson**, Thien Nam, McKenzie Calvert, and Anita Sarma. *Context in Programming: An Investigation of How Programmers Create Context*. Proceedings of the IEEE ICSE Workshop on Cooperative and Human Aspects of Software Engineering (CHASE'18), May 2018.
- [5] Shane McKee*, **Nicholas Nelson***, Anita Sarma, and Danny Dig. *Software Practitioner Perspectives on Merge Conflicts and Resolutions*. Proceedings of IEEE International Conference on Software Maintenance and Evolution (ICSME'17), Sep 2017. Acceptance ratio: 27.8% (42/151). 🏆 **IEEE TCSE Distinguished Paper Award**.
- [4] Michael Hilton, **Nicholas Nelson**, Timothy Tunnell, Darko Marinov, and Danny Dig. *Trade-offs in Continuous Integration: Assurance, Security, and Flexibility*. Proceedings of ACM SIGSOFT Symposium on the Foundations of Software Engineering (FSE'17), Sep 2017. Acceptance ratio: 24.4% (72/295). 🏆 **ACM SIGSOFT Distinguished Paper Award**.
- [3] **Nicholas Nelson**, Anita Sarma, and André van der Hoek. *Towards an IDE to Support Programming as Problem-Solving*. Proceedings of the Psychology of Programming Interest Group Workshop (PPIG'17), Jul 2017. Acceptance ratio: 84.0% (21/25).
- [2] **Nicholas Nelson**. *Problem-Solving Applications in Developer Environments*. pages 179–180. Proceedings of the Psychology of Programming Interest Group Workshop (PPIG'17), Jul 2017. Acceptance ratio: 90.0% (9/10).
- [1] Michael Hilton, **Nicholas Nelson**, Hugh McDonald, Sean McDonald, Ron Metoyer, and Danny Dig. *TDDViz: Using Software Changes to Understand Conformance to Test Driven Development*. pages 53–65. Proceedings of the International Conference on Agile Processes, in Software Engineering, and Extreme Programming (XP'16), May 2016. Acceptance ratio: 33.3% (14/42).



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| English | ● | ● | ● | ● | ● |
| Spanish | ● | ● | ○ | ○ | ○ |
| German | ● | ● | ○ | ○ | ○ |
| Mandarin | ● | ○ | ○ | ○ | ○ |
| Japanese | ● | ○ | ○ | ○ | ○ |

- > ACM SIGSOFT CAPS Travel Support Award at ICSE'19
- > Honorable Mention Award for OSU EECS Graduate Students 2018–2019
- > IEEE TCSE Distinguished Paper Award at ICSME'17
- > ACM SIGSOFT Distinguished Paper Award at FSE'17
- > Honor Roll at OSU for Winter'15, Fall'14, Winter'14, Spring'14
- > President's List at PCC for Spring'08
- > Dean's List at PCC for Winter'08, Fall'07, Winter'07

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| 2020 | Reviewer, EMPIRICAL SOFTWARE ENGINEERING (EMSE) Journal |
| 2019 | Student Volunteer, 41ST ACM/IEEE INTERNATIONAL CONFERENCE ON SOFTWARE ENGINEERING (ICSE 2019) Montreal, Canada |
| | Sub-Reviewer, 20TH IEEE SYMPOSIUM ON VISUAL LANGUAGES & HUMAN-CENTRIC COMPUTING (VL/HCC 2019) Memphis, Tennessee, USA |
| | Sub-Reviewer, 27TH ACM JOINT EUROPEAN SOFTWARE ENGINEERING CONFERENCE AND SYMPOSIUM ON THE FOUNDATIONS OF SOFTWARE ENGINEERING (ESEC/FSE 2019) Tallinn, Estonia |
| | Sub-Reviewer, 34TH IEEE/ACM INTERNATIONAL CONFERENCE ON AUTOMATED SOFTWARE ENGINEERING (ASE 2019) San Diego, California, USA |
| 2018 | Sub-Reviewer, 33RD IEEE/ACM INTERNATIONAL CONFERENCE ON AUTOMATED SOFTWARE ENGINEERING (ASE 2018) Montpellier, France |
| 2016–2018 | Steward, COALITION OF GRADUATE EMPLOYEES LOCAL 6069 (AFT, AFL-CIO), USA > Graduate employee representative for Electrical Engineering and Computer Science (EECS). |
| 2017 | Video Game Workshop Lead, CHICKTECH CORVALLIS, USA > Developed instructional material for 2017 ChickTech Corvallis Annual Summer Kickoff Event for 200–300 high school girls interested in science and technology. |
| | Sub-Reviewer, 32ND IEEE/ACM INTERNATIONAL CONFERENCE ON AUTOMATED SOFTWARE ENGINEERING (ASE) Urbana-Champaign, Illinois, USA |
| | Sub-Reviewer, 30TH ACM SYMPOSIUM ON USER INTERFACE SOFTWARE AND TECHNOLOGY (UIST) Quebec City, Canada |
| | Sub-Reviewer, 14TH INTERNATIONAL CONFERENCE ON MINING SOFTWARE REPOSITORIES (MSR) Buenos Aires, Argentina |
| 2015 | Sub-Reviewer, 30TH IEEE/ACM INTERNATIONAL CONFERENCE ON AUTOMATED SOFTWARE ENGINEERING (ASE) Lincoln, Nebraska, USA |



Dr. Anita Sarma

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

Dr. André van der Hoek

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