Nicholas NELSON
PhD Student, Computer Science | Software Developer

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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

September 2019 – June 2019
Research Intern – Program Synthesis, MICROSOFT CORPORATION, USA
> Human-computer interaction (HCI) research project with Titus Barik.

Typescript | React | Angular | Visual Studio Code | C#

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 | Javascript | jQuery | CSS | NodeJS | Atom | LaTeX | IntelliJ Idea | Git | Maven | Gradle | Groovy | Android Studio | Android 8 API | TravisCI | Jenkins | JSON | R | RStudio | Haskell | Idris | Prolog

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

December 2012 April 2010	**System Analyst I**, Samaritan Health Services, USA › 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. Oracle SQL · MySQL · PostgreSQL · Microsoft Windows Server · Bomgar Remote Access · Schlage Lock Control Software · ViewPAK Boiler System · Microsoft SharePoint · Microsoft Active Directory
April 2010 July 2008	**Help Desk Analyst**, Samaritan Health Services, USA › 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. BMC Remedy Service Management · Polycom Teleconference · LogMeIn Remote Control
July 2008 October 2007	**UNIX Server Operations Intern**, Intel Corporation, USA › 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. ColdFusion · PHP · Java · Python · Perl
October 2007 May 2007	**Engineering Computing Support Intern**, Intel Corporation, USA › 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. BMC Remedy Service Management · TrueWindow Remote Access Control · Microsoft Active Directory

📖 Peer-reviewed Publications

* co-first author.

[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).

🌐 Languages

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

🏆 Awards

> ACM SIGSOFT CAPS Travel Support Award at ICSE'19
> 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

👤 Service

2019 — Reviewer, 27th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE)
Tallinn, Estonia

Reviewer, 34th IEEE/ACM International Conference on Automated Software Engineering (ASE)
San Diego, California, USA

2018 — Reviewer, 33rd IEEE/ACM International Conference on Automated Software Engineering (ASE)
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.

Reviewer, 32nd IEEE/ACM International Conference on Automated Software Engineering (ASE)
Urbana-Champaign, Illinois, USA

Reviewer, 30th ACM Symposium on User Interface Software and Technology (UIST)
Quebec City, Canada

Reviewer, 14th International Conference on Mining Software Repositories (MSR)
Buenos Aires, Argentina

2015 — Reviewer, 30th IEEE/ACM International Conference on Automated Software Engineering (ASE)
Lincoln, Nebraska, USA

💬 References

Dr. Anita Sarma
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Oregon State University
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Dr. Michael Hilton
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