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Google Scholar Profile

Rahul Pandita

Research Interests

My primary research interests are in data science and software engineering. I specifically work on applying Natural Language Processing techniques on software artifacts to improve developer/tester/end-user productivity.

Education

2015 **Ph.D.**, *Computer Science, North Carolina State University*, Raleigh, NC, USA.
Advisor Dr. Laurie Williams, REPORT: Inferring Semantic information from Natural Language Software Artifacts
2011 **M.S.**, *Computer Science, North Carolina State University*, Raleigh, NC, USA.
Advisor Dr. Tao Xie, REPORT: Guided Test Generation for Coverage Criteria
2007 **B.E.**, *Computer Science,* AVCOE, *Pune University*, Maharashtra, INDIA.

Awards

2016 FSE 2016 Mentorship Session Scholarship Award
2013 Student Grant to attend USENIX Security Symposium
2012 FDA Group Recognition Award
2010 Virtual Teaching Assistant Award, NCSU Department of Computer Science

PUBLICATIONS

Peer-reviewed Conference/Journal Publications (10 total)

2016 **Are Vulnerabilities Discovered and Resolved like Other Defects During Software Development?**. Patrick Morrison, Rahul Pandita, Xusheng Xiao, Ram Chillarege, and Laurie Williams *under review*

TMAP: Discovering Relevant API Methods through Text Mining of API Documentation. Rahul Pandita, Raoul Praful Jetley, Sithu D Sudarsan, Tim Menzies, and Laurie Williams. *accepted in Journal of Software: Evolution and Process 2016.*

Designing for Dystopia: Software Engineering Research for the Post-Apocalypse. Titus Barik, Rahul Pandita, Justin Allen Middleton, and Emerson Murphy-Hill. FSE: Visions and Reflections Track 2016. 9/34(26.5%)

ICON: Inferring Temporal Constraints from Natural Language API Descriptions. Rahul Pandita, Kunal Taneja, Laurie Williams, and Teresa Tung. *In Proceedings of the 32nd International Conference on Software Maintenance and Evolution (ICSME'16), Raleigh, NC, USA. October 2016.* 37/127(29%) *invited for journal extension*

A Cross-Tool Communication Study on Program Analysis Tool Notifications. Brittany Johnson, Rahul Pandita, Justin Smith, Denae Ford, Sarah Elder, Emerson Murphy-Hill, Sarah Heckman, Caitlin Sadowski. *In Proceedings of the 24th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE'16), Seattle, WA, USA. November 2016.* 74/273(27.1%)

Veteran Developers' Contributions and Motivations: An Open Source Perspective. Patrick Morrison, Emerson Murphy-Hill, Rahul Pandita, and Anne McLaughlin. *In Proceedings of IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC'16), September 2016, Cambridge, UK* 15/45(33%)

2015 **Discovering Likely Mappings between APIs using Text Mining**. Rahul Pandita, Raoul P. Jetley, Sithu D. Sudarsan, and Laurie Williams. *In Proceedings of the 15th IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM 2015), Bremen, Germany, September 2015.* 24/68(35%) *invited for journal extension*

Bespoke Tools: Adapted to the Concepts Developers Know. Brittany Johnson, Rahul Pandita, Emerson Murphy-Hill, and Sarah Heckman. *In Proceedings of the 10th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering New Ideas and Emerging Results Track (ESEC-FSE NIER'15), Bergamo, Italy, August 2015.* (27%)

Enabling Forensics by Proposing Heuristics for Identifying Mandatory Log Events. Jason King, Rahul Pandita, and Laurie Williams. *In Proceedings of the Symposium and Bootcamp on the science of security (HOTSOS'15), Illinois, USA, April 2015*

2013 **WHYPER: Towards Automating Risk Assessment of Mobile Applications**. Rahul Pandita, Xusheng Xiao, Wei Yang, William Enck, Tao Xie. *In Proceedings of the 22nd USENIX Security Symposium (USENIX Security '13), Washington DC, USA, August 2013.* 45/277(16.2%)

2012 **Inferring Method Specifications from Natural Language API Descriptions**. Rahul Pandita, Xusheng Xiao, Hao Zhong, Tao Xie, Stephen Oney, and Amit Paradkar. *In Proceedings of the 34th International Conference on Software Engineering (ICSE 2012), Zurich, Switzerland, July 2012.* 87/408(21%)

2010 **Guided Test Generation for Coverage Criteria**. Rahul Pandita, Tao Xie, Nikolai Tillmann, and Jonathan de Halleux. *In Proceedings of the 26th IEEE International Conference on Software Maintenance (ICSM 2010), Timişoara, Romania, September 2010.* 36/133(27%)

Peer-reviewed Refereed Workshop Publications (1 total)

2013 **Literature Review of Testing Techniques for Medical Device Software**. John J. Majikes, Rahul Pandita, and Tao Xie. *In Proceedings of the 4th Medical Cyber-Physical Systems Workshop (MCPS 2013), Philadelphia, USA, April 2013.*

Miscellaneous

2014 Poster: **Improving Mobile Application Security by Enhancing User Perceptions of Application Behaviors**. Wei Yang, Xusheng Xiao, Rahul Pandita, William Enck, and Tao Xie. *In Proceedings of the Symposium and Bootcamp on the Science of Security (HOTSOS 2014), Raleigh, USA, April 2014.*

2013 **22nd USENIX Security Symposium Conference Summaries**, USENIX ;login Magazine, Rahul Pandita, Dec, 2013

Work Experience

Academic

Jan'16-present **Post Doctoral Researcher**, North Carolina State University, Raleigh, NC, USA.
Preliminary exploration as well as design and implementation of novel frameworks to objectively access and recommend best software development practices for security and privacy.

Supervisors Dr. Laurie Williams and Dr. Munindar Singh

Industry

May-Aug'13 **Summer Intern**, Accenture Technology Labs, San Jose, CA, USA.
Designed and implemented an approach to infer usage constraints from natural language API documents of REST Services. The inferred constraints are directed towards automatic verification and validation of both the REST API as well as clients consuming the API.

Mentors Dr. Kunal Taneja, Dr. Qing Xie

May-Aug'10 **Summer Intern**, US Food and Drug Administration, SilverSpring, MD, USA.
Aug-Dec'11 Development of a framework to perform efficient retrieval of information from medical adverse event reports using textual
May-Aug'12 mining and display results to the user in a graphical reports. Designed and implemented an approach to infer semantic relationships from Natural Language Text. Designed and implemented a Apache Lucene based generic search framework on principles of semantic text mining. Furthermore, was also responsible to develop the web-based frontend to interact with the system using JSP and JQuery.

Mentors Dr. Raoul Jetley, Dr. Sithu Sudarsan

May-Aug'11 **Summer Intern**, IBM India Research Labs, Bangalore, India.
Designed and implemented an approach to understand unit test evolution; specifically focusing on how test-repair is performed.

Mentors Dr. Saurabh Sinha, Dr. Suresh Thummalapenta

May'07-Dec'08 **Software Engineer**, Hughes Systique Corporation, Gurgaon, India.
Development of network management system to manage satellite base service station components. Designed and implemented SIP-XMPP Gateway for IM compatibility. Performed Integration testing and acceptance testing at the client site.

Supervisor Mr. Danish Aggarwal

Technical skills

Text Mining, Natural Language Processing, Machine Learning, Program Analysis, Software Engineering, Software Testing

Frameworks Hibernate, jUnit, Microsoft Pex, Struts, Spring, Apache Tomcat, Stanford Parser for NLP, Apache Lucene

Platforms Windows, Unix, Android

Programming/ Scripting J2EE, JavaScript, JSP, C#, HTML, CSS, JQuery

Tools Eclipse, Microsoft Visual Studio, GIT, SVN

Relevant Courses

- Software Reliability and Testing
- Design and Analysis of Algorithms
- Service Oriented Computing
- E Commerce
- Database Management Systems
- Software Engineering
- Software Security
- Automata and Computation Theory
- Computer Networks
- Human Computer Interaction

Professional Activities

PC-Member PROMOTO'15, ICSME'16 Industry Track

Reviewer Transactions on Software Engineering and Methodology (TOSEM)

External Reviewer UbiComp'14, DSN'13, Journal for Empirical Software Engineering'14, International Journal of Distributed Sensor Networks'16

Co-Reviewer WWW'13, ICSE'11, FSE'13, ASE'10'14

References

Available Upon Request