Daniel E. Krutz

Rochester Institute of Technology
Department of Software Engineering   Phone: (585) 475-2896
Center of Cybersecurity   Email: dxkvse@rit.edu
Golisano Building 70   Homepage: http://www.se.rit.edu/~dkrutz
Rochester, NY 14623-5608

RESEARCH INTERESTS

Autonomic Computing, Decision Support, Computing Education

EDUCATION

Ph.D. Computer Science, Nova Southeastern University, 2013.
   Dissertation: Code Clone Discovery Based on Concolic Analysis

M.S. Software Design & Management, Rochester Institute of Technology, 2007.

B.S. Computer Science & History, St. John Fisher College, 2004.

EMPLOYMENT

Assistant Professor, Department of Software Engineering, RIT 2017–Present.

Lecturer, Department of Software Engineering, RIT 2010–2017.

APPOINTMENTS

Research Fellow, US Air Force Office of Scientific Research (AFRL/RI), 2018

RESEARCH GRANTS

G1: ONR, "A Multimodal Dynamic Bayesian Learning Framework for Complex Decision-making", $1,586,800 (PI:Qi Yu; Co-PI:**Daniel Krutz**; 10/18 - 9/22).

G2: NSF, "Developing Experiential Laboratories for Computing Accessibility Education", $299,994 (PI:**Daniel Krutz**; Co-PI:Paul Tymann, Yasmine El-Glaly; 9/18 - 8/21).

G3: NSF, "Collaborative Research: Interactive Video-Enhanced Tutorials on Problem Solving in Physics", $290,105 (PI:Robert Teese; Co-PI:Michelle Chabot; Sr. Person **Daniel Krutz**; 9/18 - 8/21).

G4: NSA, "GenCyber @ RIT: Secure Web and Mobile Computing", $130,908 (PI:Rajendra Raj; Co-PI:**Daniel Krutz**; 5/18 - 4/19).

G5: RIT, "Making Self-Adaptive Systems More Resilient By Reducing Decision-Making Uncertainty'", $5,000 (PI:**Daniel Krutz**; Co-PI:None; 5/18 - 9/18).

G6: SIGSCE, "Inclusive Apps: Supporting Mobile Accessibility Standards Through Educational Exercises", $3,800 (PI:**Daniel Krutz**; Co-PI:Yasmine El-Glaly; 1/17 - 12/17).

G7: RIT, "FEED Development ", $3,150 (PI:**Daniel Krutz**; Co-PI:None; 1/17 - 12/17).

G8: RIT, "PLASMA: A Set of Educational Mobile Security Modules", $1,800 (PI:**Daniel Krutz**; Co-PI:None; 1/16 - 12/16).

G9: RIT, "FEED Development ", $3,150 (PI:**Daniel Krutz**; Co-PI:None; 1/16 - 12/16).

G10: SIGSCE, "Supporting Education Using a Public Oracle of Vulnerable Mobile Apps", $2,400 (PI:**Daniel Krutz**; Co-PI:None; 1/16 - 12/16).

G11: RIT, "Investigating Android M Permissions: Adoption, Ratings, and Malware", $1,800 (PI:**Daniel Krutz**; Co-PI:None; 1/15 - 12/15).

G12: RIT, "Enhancing Software Engineering Education for Deaf/HoH Students", $525 (PI: **Daniel Krutz**; Co-PI:None; 1/15 - 12/15).

PUBLICATIONS

[1] PERUMA, Anthony ; KRUTZ, Daniel E.: Security: A Critical Quality Attribute in Self-Adaptive Systems. In: *13th International Symposium on Software Engineering for Adaptive and Self-Managing Systems*, 2018 (SEAMS '18)

[2] PERUMA, Anthony ; PALMERO, Jeffrey ; KRUTZ, Daniel E.: Investigating User Perception and Comprehension of Android Permission Models. In: *Proceedings of the 5th International Conference on Mobile Software Engineering and Systems*, 2018 (MOBILESoft '18)

[3] PERUMA, Anthony ; KRUTZ, Daniel E.: Understanding the Relationship Between Quality and Security: A Large-Scale Analysis of Android Applications. In: *International Workshop on Security Awareness from Design to Deployment.* New York, NY, USA : ACM, 2018 (SEAD 2018)

[4] PERUMA, Anthony ; MALACHOWSKY, Samuel A. ; KRUTZ, Daniel E.: Providing an Experiential Cybersecurity Learning Experience Through Mobile Security Labs. In: *International Workshop on Security Awareness from Design to Deployment.* New York, NY, USA : ACM, 2018 (SEAD 2018)

[5] EL-GLALY, Yasmine N. ; PERUMA, Anthony ; KRUTZ, Daniel E. ; HAWKER, J. S.: Apps for Everyone: Mobile Accessibility Learning Modules. In: *ACM Inroads* 9 (2018), April, Nr. 2, 30–33. http://dx.doi.org/10.1145/3182184. – DOI 10.1145/3182184. – ISSN 2153–2184

[6] KRUTZ, Daniel E. ; RICHARDS, Thomas: Cyber Security Education: Why Don't We Do Anything About It? In: *ACM Inroads* 8 (2017), Oktober, Nr. 4, 5–5. http://dx.doi.org/10.1145/3132217. – DOI 10.1145/3132217. – ISSN 2153–2184

[7] KRUTZ, Daniel E. ; MUNAIAH, Nuthan ; PERUMA, Anthony ; MKAOUER, Mohamed W.: Who Added That Permission to My App?: An Analysis of Developer Permission Changes in Open Source Android Apps. In: *Proceedings of the 4th International Conference on Mobile Software Engineering and Systems.* Piscataway, NJ, USA : IEEE Press, 2017 (MOBILESoft '17). – ISBN 978–1–5386–2669–6, 165–169

[8] MCAFEE, Patrick ; MKAOUER, Mohamed W. ; KRUTZ, Daniel E.: CATE: Concolic Android Testing Using Java Pathfinder for Android Applications. In: *Proceedings of the 4th International Conference on Mobile Software Engineering and Systems.* Piscataway, NJ, USA : IEEE Press, 2017 (MOBILESoft '17). – ISBN 978–1–5386–2669–6, 213–214

[9] CHESTER, Piper ; JONES, Chris ; MKAOUER, Mohamed W. ; KRUTZ, Daniel E.: M-perm: A Lightweight Detector for Android Permission Gaps. In: *Proceedings of the 4th International Conference on Mobile Software Engineering and Systems.* Piscataway, NJ, USA : IEEE Press, 2017 (MOBILESoft '17). – ISBN 978–1–5386–2669–6, 217–218

[10] DENNIS, Colton ; KRUTZ, Daniel E. ; MKAOUER, Mohamed W.: P-lint: A Permission Smell Detector for Android Applications. In: *Proceedings of the 4th International Conference on Mobile Software Engineering and Systems.* Piscataway, NJ, USA : IEEE Press, 2017 (MOBILESoft '17). – ISBN 978–1–5386–2669–6, 219–220

[11] KRUTZ, Daniel E. ; MALACHOWSKY, Samuel A.: Teaching android security through examples: a publicly available database of vulnerable apps. In: *ACM Inroads* 7 (2016), Nr. 4, S. 96–98

[12] Conference Organization. In: *2016 International Conference on Cloud and Autonomic Computing (ICCAC)*, 2016, S. ix–xi

[13] KRUTZ, Daniel E. ; MUNAIAH, Nuthan ; MENEELY, Andrew ; MALACHOWSKY, Samuel A.: Examining the Relationship Between Security Metrics and User Ratings of Mobile Apps: A Case Study. In: *Proceedings of the International Workshop on App Market Analytics.* New York, NY, USA : ACM, 2016 (WAMA 2016). – ISBN 978–1–4503–4398–5, 8–14

[14] KRUTZ, Daniel E. ; MIRAKHORL, Mehdi: Architectural Clones: Toward Tactical Code Reuse. In: *Proceedings of the 31st Annual ACM Symposium on Applied Computing.* New York, NY, USA : ACM, 2016 (SAC '16). – ISBN 978–1–4503–3739–7, 1480–1485

[15] MUNAIAH, Nuthan ; KLIMKOWSKY, Casey ; MCRAE, Shannon ; BLAINE, Adam ; MALACHOWSKY, Samuel A. ; PEREZ, Cesar ; KRUTZ, Daniel E.: Darwin: a static analysis dataset of malicious and benign Android apps. In: *Proceedings of the International Workshop on App Market Analytics* ACM, 2016, S. 26–29

[16] MALACHOWSKY, S. A. ; KRUTZ, D. E.: A project component in a web engineering course. In: *2015 IEEE Frontiers in Education Conference (FIE)*, 2015, S. 1–6

[17] KRUTZ, D. E. ; MENEELY, A. ; MALACHOWSKY, S. A.: An insider threat activity in a software security course. In: *2015 IEEE Frontiers in Education Conference (FIE)*, 2015, S. 1–6

[18] KRUTZ, Daniel E. ; MIRAKHORLI, Mehdi ; MALACHOWSKY, Samuel A. ; RUIZ, Andres ; PETERSON, Jacob ; FILIPSKI, Andrew ; SMITH, Jared: A dataset of open-source Android applications. In: *Mining Software Repositories (MSR), 2015 IEEE/ACM 12th Working Conference on* IEEE, 2015, S. 522–525

[19] KRUTZ, Daniel E. ; MALACHOWSKY, Samuel A. ; SHIHAB, Emad: Examining the effectiveness of using concolic analysis to detect code clones. In: *Proceedings of the 30th Annual ACM Symposium on Applied Computing* ACM, 2015, S. 1610–1615

[20] KRUTZ, D. E. ; MALACHOWSKY, S. A. ; JONES, S. D. ; KAPLAN, J. A.: Enhancing the educational experience for deaf and hard of hearing students in software engineering. In: *2015 IEEE Frontiers in Education Conference (FIE)*, 2015, S. 1–9

[21] KRUTZ, Daniel E. ; LE, Wei: A code clone oracle. In: *Proceedings of the 11th Working Conference on Mining Software Repositories* ACM, 2014, S. 388–391

[22] KRUTZ, Daniel E. ; MALACHOWSKY, Samuel A. ; REICHLMAYR, Thomas: Using a Real World Project in a Software Testing Course. In: *Proceedings of the 45th ACM Technical Symposium on Computer Science Education.* New York, NY, USA : ACM, 2014 (SIGCSE '14). – ISBN 978–1–4503–2605–6, 49–54

[23] KRUTZ, Daniel E. ; SHIHAB, Emad: CCCD: Concolic code clone detection. In: *Reverse Engineering (WCRE), 2013 20th Working Conference on* IEEE, 2013, S. 489–490

[24] KRUTZ, D. E. ; MENEELY, A.: Teaching Web Engineering using a project component. In: *2013 IEEE Frontiers in Education Conference (FIE)*, 2013. – ISSN 0190–5848, S. 1366–1368

[25] KRUTZ, D. E. ; VALLINO, J. R.: Experiencing disruptive behavior in a team using moles. In: *2013 IEEE Frontiers in Education Conference (FIE)*, 2013. – ISSN 0190–5848, S. 1492–1495

[26] KRUTZ, D. E. ; LUTZ, M.: Bug of the Day: Reinforcing the importance of testing. In: *2013 IEEE Frontiers in Education Conference (FIE)*, 2013. – ISSN 0190–5848, S. 1795–1799

[27] KRUTZ, Daniel E.: *Code Clone Discovery Based on Concolic Analysis*, Diss., 2013. – 139 S.

[28] LUTZ, M. J. ; VALLINO, J. R. ; MARTNEZ, K. ; KRUTZ, D. E.: Instilling a software engineering mindset through freshman Seminar. In: *2012 Frontiers in Education Conference Proceedings*, 2012. – ISSN 0190–5848, S. 1–6

INVITED TALKS

T1: Technische Universität Berlin, Berlin, Germany, 7/17
T2: SEED Security Workshop, Syracuse, NY, 6/17
T3: New York Celebration of Women in Computing, Rochester, NY, 4/17

COURSES TAUGHT

C1: Web Engineering: Spring 2012 - present (developed new course).
C2: Research Methods (graduate course) - Fall 2016 - Present
C3: Engineering of Secure Software - Fall 2014 - Spring 2017
C4: Foundations of Software Engineering (graduate course) - Fall 2015 - 2017
C5: Introduction to Software Engineering: Fall, - Present
C6: Software Testing: Fall 2010 - Fall 2014.
C7: Freshman Seminar: Fall 2011, 2012 & 2015.
C8: Senior Project Coaching: 2010-present.
C9: Engineering of Enterprise Software Systems: Spring 2013 - Present
C10: Independent Study: Spring 2013-Present

THESES SUPERVISED

S1: Saleh Rebaz – MS 11/17 "Mining User Reviews To Extract Features For Initial Release Of Mobile Apps" *RIT*
S2: Jhaveri Sweta – MS 8/17 "An Empirical Analysis of Privacy Leaks in Android Apps" *RIT*
S3: Tilekar Rohan – MS 8/17 "Extraction and Quality Analysis of Third Party Libraries in Android" *RIT*

SERVICE

Conference Organizing Committees

- Innovation & Technology in Computer Science Education (ITiCSE). Associate PC. 2016 - Present
- IEEE International Conference on Cloud and Autonomic Computing (ICCAC). Poster Chair. 2017
- IEEE International Conference on Cloud and Autonomic Computing (ICCAC). Web Chair. 2016

Publication Reviewer

- IEEE Software: 2018 - Present
- Journal of Visual Language & Computing: 2018

- (InCULT) International Conference on University Learning and Teaching: 2016 - Present
- (FIE) Frontiers in Education: 2013-present
- (ASEE) American Society for Engineering Education: 2011-present

INDUSTRY EXPERIENCE

- Technology Consultant, Mindex Technologies 8/2009 – 8/2010.
- Sr. Software Engineer, 5Linx Enterprises, 2/2009–8/2009.
- R&D Software Developer, Xerox Corporation 5/2004–1/2009.

PROFESSIONAL ASSOCIATIONS

- Access Computing https://www.washington.edu/accesscomputing/
- Association for Computing Machinery (ACM)
- Institute of Electrical and Electronics Engineers (IEEE)

UNIVERSITY SERVICE

- College Governance Committee 2016-Present (Chair 2017 - Present)
- Coordinator for concurrent sections of Introduction to Software Engineering course (12-15 sections with 240-300 students) (2010-2016)
- Software Engineering undergraduate curriculum committee, 2012-2016
- Software Engineering honors advocate 2015-2017

REFERENCES

Available upon request

<center>Last updated: October 13, 2018</center>