

Ajay Kumar Jha

Curriculum Vitae

*The Software Testing and Maintenance (STAM) Lab.
QBB, 258, B8, Department of Computer Science
North Dakota State University
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<https://hifromajay.github.io/>*

Research Interests

I am interested in software engineering, specifically software testing, software maintenance, mining software repositories, and empirical software engineering.

Academic Positions

Assistant Professor (August 2022 – Present)

North Dakota State University, Fargo, ND, USA

Postdoctoral Researcher (March 2020 – July 2022)

University of Alberta, Edmonton, Alberta, Canada

Postdoctoral Researcher (March 2017 – February 2020)

Kyungpook National University, Daegu, Republic of Korea

Education

Ph.D. in Computer Science, February 2017

Kyungpook National University, Republic of Korea

Thesis: Enhancement of reliability and security of inter-component communications in Android

M.S. in Computer Science, August 2013

Kyungpook National University, Republic of Korea

Thesis: Reproducing crash in Android applications using capture and replay technique

B.Sc. in Information Technology, January 2004

Sikkim Manipal University of Health, Medical & Technological Sciences, India

Publications

- **Ajay Kumar Jha**, Mohayeminul Islam, and Sarah Nadi. JTestMigBench and JTestMigTax: A benchmark and taxonomy for unit test migration. In *Proceedings of 30th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER)*. 2023. ERA Track.
- Mohayeminul Islam, **Ajay Kumar Jha**, and Sarah Nadi. PyMigBench and PyMigTax: A Benchmark and Taxonomy for Python Library Migration. *arXiv: 2207.01124*. 2022.
- Mansur Gulami, **Ajay Kumar Jha**, Sarah Nadi, Karim Ali, Emily Jiang, and Yee-Kang Chang. A Human-in-the-loop Approach to Generate Annotation Usage Rules: A Case Study with MicroProfile. In *CASCONxEVOKE 2022*.
- Batyr Nuryyev, **Ajay Kumar Jha**, Sarah Nadi, Yee-Kang Chang, Emily Jiang, and Vijay Sundaresan. Mining Annotation Usage Rules: A Case Study with MicroProfile. In *Proceedings of 38th IEEE International Conference on Software Maintenance and Evolution (ICSME)*. 2022. Industry Track
- **Ajay Kumar Jha** and Sarah Nadi. Annotation practices in Android apps. In *Proceedings of 20th International Working Conference on Source Code Analysis and Manipulation (SCAM)*, pp. 132-142. IEEE, 2020.
- Sooyong Jeong, **Ajay Kumar Jha**, Youngsul Shin, and Woo Jin Lee. A log-based testing approach for detecting faults caused by incorrect assumptions about the environment. *IEICE Transactions on Information and Systems*, 103(1), pp. 170-173.
- **Ajay Kumar Jha**, Sunghee Lee, and Woo Jin Lee. An empirical study of configuration changes and adoption in Android apps. *Journal of Systems and Software (JSS)*. 156 (2019), pp. 164-180.

- **Ajay Kumar Jha**, Sunghee Lee, and Woo Jin Lee. Characterizing Android-specific crash bugs. In *Proceedings of the 6th IEEE/ACM International Conference on Mobile Software Engineering and Systems (MobileSoft)*, pp. 111-122. IEEE Press, 2019.
- **Ajay Kumar Jha**, Deok Yeop Kim, and Woo Jin Lee. A framework for testing Android apps by reusing test cases. In *Proceedings of the 6th IEEE/ACM International Conference on Mobile Software Engineering and Systems (MobileSoft)*, pp. 20-24. 2019. Vision Track.
- **Ajay Kumar Jha** and Woo Jin Lee. An empirical study of collaborative model and its security risk in Android. *Journal of Systems and Software (JSS)*. 137 (2018), pp. 550-562.
- **Ajay Kumar Jha**, Sunghee Lee, and Woo Jin Lee. Developer mistakes in writing Android manifests: An empirical study of configuration errors. In *Proceedings of the 14th International Conference on Mining Software Repositories (MSR)*, pp. 25-36. IEEE Press, 2017.
- **Ajay Kumar Jha** and Woo Jin Lee. Analysis of permission-based security in android through policy expert, developer, and end user perspectives. *Journal of Universal Computer Science (JUCS)*, vol. 22, no. 4, pp. 459-474, 2016.
- **Ajay Kumar Jha**, Sunghee Lee, and Woo Jin Lee. Modeling and test case generation of inter-component communication in android. In *Proceedings of the Second ACM International Conference on Mobile Software Engineering and Systems (MobileSoft)*, pp. 113-116. IEEE Press, 2015.
- **Ajay Kumar Jha**, Seungmin Lee, and Woo Jin Lee. Permission-based security in android application: from policy expert to end user. In *Proceedings of the 2015 Research in Adaptive and Convergent Systems (RACS)*, pp. 319-320. ACM, 2015.
- Soo Young Jang, **Ajay Kumar Jha**, and Woo Jin Lee. Virtual prototype generation by shockwave flash for simulating HW components of embedded system. In *Proceedings of the 29th Annual ACM Symposium on Applied Computing (SAC)*, pp. 1755-1756. 2014.
- **Ajay Kumar Jha** and Woo Jin Lee. Activity-based Event Capture and Replay Technique for Reproducing Crashes in Android Applications. *IEMEK Journal of Embedded Systems and Applications*. 9 (1), 1-9. 2014
- **Ajay Kumar Jha**, Sooyong Jeong, and Woo Jin Lee. Value-deterministic search-based replay for android multithreaded applications. In *Proceedings of the 2013 Research in Adaptive and Convergent Systems (RACS)*, pp. 381-386. ACM, 2013.
- **Ajay Kumar Jha** and Woo Jin Lee. Capture and replay technique for reproducing crash in android applications. In *Proceedings of the 12th IASTED International Conference in Software Engineering*, pp. 783-790. 2013.

Student Supervision

Ph.D.	Amjad Allobadi, North Dakota State University (Nov 2022 - current) Mohayeminul Islam, University of Alberta (Oct 2021 - current) Sooyong Jeong, Kyungpook National University (March 2019 – Feb 2020)
Masters	Mansur Gulami, University of Albert (Feb 2022 – July 2022) Batyr Nuryyev, University of Alberta (July 2020 – Nov 2021)
Ugrad RA	Xichen Pan, University of Alberta (May 2021 – Sep 2021)

Teaching

CSCI 714. Software Project Planning and Estimation, NDSU - Fall 2022

CSCI 783. Topics in Software Systems: Mobile Software Engineering, NDSU - Spring 2023

Services

Session Chair	SANER – 2022 MSR - 2022
PC Member	MSR – 2021 (Technical track), 2022 (Technical track) SANER – 2021 (ERA track), 2022 (ERA track)

MobileSoft - 2022 (Research track), 2023 (Research track)
FSE – 2021 (Artifact track), 2022 (Artifact track)
ASE – 2021 (Artifact track), 2022 (Artifact track)
ICSE – 2023 (Demo track)

Reviewer IEEE Transactions on Software Engineering – 2021, 2022
Empirical Software Engineering - 2021, 2022
Journal of Software: Practice and Experience - 2020

Sub-reviewer IEEE Transactions on Software Engineering - 2020

Industrial Experience

Unified Technology Consultancy, Nepal. Co-founder (February 2009 – June 2011)
Responsibilities - business development and project management

V2Soft, India. Business Development Manager (March 2008 – August 2008)
Responsibility - business development

FoxsysTech, India. Business Development Manager (September 2007 – January 2008)
Responsibilities - business development and project management

MindproSoft, India. Co-founder (November 2005 – August 2007)
Responsibilities - programming, project management, and business development

Awards and Fellowships

BrainKorea21 (September 2011 – February 2017)
Human resource development funding program initiated by the Korean government.

KNU Honors Scholarship (September 2013 – August 2015)
Kyungpook National University scholarship for the Ph.D. program.

KNU Honors Scholarship (September 2011 – February 2013)
Kyungpook National University scholarship for the M.S. program.