**Ajay Kumar Jha**

*Curriculum Vitae*

*QBB 258 A23, Department of Computer Science*

*North Dakota State University*

*Fargo, ND 58105, USA*





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*https://hifromajay.github.io/*

**Research Interest**

Software engineering, software testing and maintenance, mining software repositories, and empirical software engineering.

**Professional Experience**

**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

**Co-founder** (February 2009 – June 2011)

Unified Technology Consultancy, Kathmandu, Nepal.

**Account Manager** (March 2008 – August 2008)

V2Soft, Bangalore, India.

**Business Development Manager** (September 2007 – January 2008)

FoxsysTech, Gurgaon, India.

**Co-founder** (November 2005 – August 2007)

MindproSoft, Bangalore, India.

**Education**

**Ph.D. in Computer Science & Engineering,** February 2017

Kyungpook National University, Republic of Korea

**M.S. in Computer Science,** August 2013

Kyungpook National University, Republic of Korea

**B.Sc. in Information Technology,** January 2004

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

**Publication**

* Mohayeminul Islam, **Ajay Kumar Jha**, May Mahmoud, Ildar Akhmetov, and Sarah Nadi. An Empirical Study of Python Library Migration Using Large Language Models. In *Proceedings of 40th IEEE/ACM International Conference on Automated Software Engineering (ASE)*, 2025.
* Suraj Bhatta, Frank Kendemah, **Ajay Kumar Jha**. Understanding Test Deletion in Java Applications. In *Proceedings of 22nd IEEE/ACM International Conference on Mining Software Repositories (MSR)*. pp. 408-420. 2025.
* **Ajay Kumar Jha**, Sarah Nadi. Migrating Unit Tests Across Java Applications. In *Proceedings of the 24th IEEE International Conference on Source Code Analysis and Manipulation (SCAM)*. pp. 131-142. 2024.
* Sai Kiran Bhrugumalla, **Ajay Kumar Jha**. TRec: A Regression Test Recommender for Java Projects. In *Proceedings of 40th IEEE International Conference on Software Maintenance and Evolution (ICSME)*. pp. 903-907. 2024. Tool Demo Track
* Mohayeminul Islam, **Ajay Kumar Jha**, Ildar Akhmetov, and Sarah Nadi. Characterizing Python Library Migrations. In *Proceedings of 32nd ACM Symposium on the Foundations of Software Engineering (FSE)*. pp. 92-114. 2024.
* Mohayeminul Islam, **Ajay Kumar Jha**, Sarah Nadi, and Ildar Akhmetov. PyMigBench: A Benchmark for Python Library Migration. In *Proceedings of 20th IEEE/ACM International Conference on Mining Software Repositories (MSR)*. pp. 511-515. 2023. Data and Tool Track.
* **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)*. pp. 713-717. 2023. ERA Track.
* 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 *Proceedings of Annual International Conference on Computer Science and Software Engineering (CASCON),* pp 91-100. 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)*. pp. 553-562. 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.**

**Mohayeminul Islam**, University of Alberta (Oct 2021 - current)

**Rupinder Kaur**, North Dakota State University (March 2024 – June 2025)

**Masters**

**Aayush Lamsal**, North Dakota State University (Feb 2025 - current)

**Suraj Pokhrel**, North Dakota State University (Aug 2024 - current)

**David Owuor**, North Dakota State University (May 2024 - current)

**Frank Kendermah**, North Dakota State University (Feb 2024 - current)

**Suraj Bhatta**, North Dakota State University (Jan 2023 – Dec 2024)

**Sai Kiran Bhrugumalla**, North Dakota State University (March 2023 – July 2024)

**Undergrad**

**Xichen Pan**, University of Alberta (May 2021 – Sep 2021)

**Teaching**

**CSCI 412.** Mobile Software Engineering, NDSU – Fall’23, 24, 25

**CSCI 712.** Mobile Software Engineering, NDSU – Spring’25

**CSCI 713.** Software Development Process, NDSU – Fall’25

**CSCI 714.** Software Project Planning and Estimation, NDSU – Fall’22, 23, 24

**CSCI 783.** Topics in Software Systems, NDSU – Spring’23, 24

**CSCI 790.** Graduate Seminar, NDSU:

Optimizing Regression Test Suites - Spring’24

LLMs for Software Testing and Maintenance - Fall’24

Code Smell and Refactoring – Spring’25

**Service**

**Session Chair:**

**ICSME:** International Conference on Software Maintenance and Evolution - 2024

**SANER:** International Conference on Software Analysis, Evolution and Reengineering – 2022

**MSR:** International Conference on Mining Software Repositories - 2022

**Program Committee Member:**

**MSR:** International Conference on Mining Software Repositories (Technical track) – 2021, 2022, 2024, 2025, 2026

**SANER:** International Conference on Software Analysis, Evolution and Reengineering (ERA & Demo tracks) – 2021, 2022, 2024

**ICSME:** International Conference on Software Maintenance and Evolution (Technical track) - 2024, 2025

**MobileSoft:** International Conference on Mobile Software Engineering and Systems (Research track) - 2022, 2023

**FSE:** International Symposium on the Foundations of Software Engineering (Artifact track) – 2021, 2022

**ASE:** International Conference on Automated Software Engineering (Artifact track) – 2021, 2022

**ICSE:** International Conference on Software Engineering (Demo track) – 2023

**Reviewer:**

**TSE:** IEEE Transactions on Software Engineering – 2020, 2021, 2022, 2024, 2025

**TOSEM:** ACM Transactions on Software Engineering and Methodology - 2025

**ESE:** Empirical Software Engineering - 2021, 2022

**JSPE:** Journal of Software: Practice and Experience - 2020

**Scholarships and Awards**

**National Research Foundation of Korea** (March 2017 – February 2020)

Postdoctoral Researcher Funding

**Brain Korea 21/21 Plus** (September 2011 – February 2017)

Research assistantship during my Master’s and Ph.D programs

**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.