# Ajay Kumar Jha
*Curriculum Vitae*

*The Software Testing and Maintenance (STAM) Lab.*
*QBB, 258, B8, Department of Computer Science*
*North Dakota State University*
*Fargo, ND, USA*
*Email: ajay.jha.1@ndsu.edu*
*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

- 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

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

## Services
**Session Chair**
> SANER – 2022
> MSR - 2022

**PC Member**
> MSR – 2021 (Research track), 2022 (Research 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.