

# Ajay Kumar Jha

## Curriculum Vitae

QBB 258 B8, Department of Computer Science  
North Dakota State University  
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### Research Interest

Software engineering, software testing, software 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.

**Business Development Manager** (March 2008 – August 2008)

V2Soft, Bangalore, India.

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

FoxxsysTech, Gurgaon, India.

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

MindproSoft, Bangalore, India.

### Education

**Ph.D. in Computer Science**, 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**, Ildar Akhmetov, and Sarah Nadi. Characterizing Python Library Migrations. In *Proceedings of 32nd ACM Symposium on the Foundations of Software Engineering (FSE)*. 2024.
- Mohayeminul Islam, **Ajay Kumar Jha**, Sarah Nadi, and Ildar Akhmetov. PyMigBench: A Benchmark for Python Library Migration. In *Proceedings of 20th IEEE International Conference on Mining Software Repositories (MSR)*. 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)*. 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 *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.**

**Rupinder Kaur**, North Dakota State University (March 2024 - current)

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

**Amjad Allobadi**, North Dakota State University (Nov 2022 – Dec 2023)

**Sooyong Jeong**, Kyungpook National University (March 2019 – Feb 2020)

## **Masters**

**David Owuor**, North Dakota State University (May 2024 - current)  
**Frank Kendermah**, North Dakota State University (Feb 2024 - current)  
**Sai Kiran Bhrugumalla**, North Dakota State University (March 2023 - current)  
**Suraj Bhatta**, North Dakota State University (Jan 2023 - current)  
**Mansur Gulami**, University of Albert (Feb 2022 – July 2022)  
**Batyr Nuryyev**, University of Alberta (July 2020 – Nov 2021)

## **Undergrad**

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

## **Teaching**

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

## **Service**

### **Session Chair**

**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 – 2021 (Technical track), 2022 (Technical track), 2024 (Technical track)  
**SANER**: International Conference on Software Analysis, Evolution and Reengineering – 2021 (ERA track), 2022 (ERA track), 2024 (Tools Demo track)  
**ICSME**: International Conference on Software Maintenance and Evolution - 2024 (Technical track)  
**MobileSoft**: International Conference on Mobile Software Engineering and Systems - 2022 (Research track), 2023 (Research track)  
**FSE**: International Symposium on the Foundations of Software Engineering – 2021 (Artifact track), 2022 (Artifact track)  
**ASE**: International Conference on Automated Software Engineering – 2021 (Artifact track), 2022 (Artifact track)  
**ICSE**: International Conference on Software Engineering – 2023 (Demo track)

### **Reviewer**

**TSE**: IEEE Transactions on Software Engineering – 2020, 2021, 2022  
**ESE**: Empirical Software Engineering - 2021, 2022  
**JSS**: Journal of Software: Practice and Experience - 2020

## **Scholarships and Awards**

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

**BrainKorea21** (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.