Kisub Kim

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Singapore Management University (SMU)
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RESEARCH INTERESTS

Passionate about research related to combination of the Artificial Intelligence and Software Engineering. Recently, exploring technologies of machine learning and deep learning along with its possible applications on downstream tasks such as code search, code review, and code representation.

EDUCATION

- PhD Computer Science, University of Luxembourg
  Graduation date: December 17, 2021.
- M.Eng. Computer Engineering, Chungbuk National University
  Graduation date: February 22, 2017, GPA: 4.5 / 4.5
- B.S.E. Computer Engineering, Chungbuk National University
  Graduation date: August 28, 2014, GPA: 3.87 / 4.5 (Graduation Rank: No. 6/145)
- English Language Program, University of Pennsylvania
  August 25, 2010 - Jan 28, 2011.

PUBLICATIONS

Journal Articles [Refereed]

- Tiezhu Sun, Kevin Allix, Kisub Kim, Xin Zhou, Dongsun Kim, David Lo, Tegawendé F. Bissyandé, and Jacques Klein, "A Pre-Trained BERT Model for Android Applications," Transactions on Software Engineering (TSE), 2023. [Under Review]
- Xin Zhou, Bowen Xu, Kisub Kim, Donggyun Han, Thanh Le Cong, Junda He, Bach Le, and David Lo, "PatchZero: Zero-Shot Automatic Patch Correctness Assessment," Transactions on Software Engineering (TSE), 2023. [Under Review]
- Junda He, Xin Zhou, Bowen Xu, Ting Zhang, Kisub Kim, Zhou Yang, Ferdian Thung, Ivana Clairine Irsan, and David Lo, "Representation Learning for Stack Overflow Posts: How Far are We?" ACM Transactions on Software Engineering and Methodology (TOSEM), 2023. [Under Review]
- Kisub Kim, Sankalp Ghatpande, Dongsun Kim, Xin Zhou, Kui Liu, Tegawendé F. Bissyandé, Jacques Klein, Yves Le Traon, "Big Code Search: a Bibliography," ACM Computing Surveys (CSUR), 2023. [Accepted, will be appeared]
- Kisub Kim, Sankalp Ghatpande, Kui, Liu, Anil, Koyuncu, Dongsun Kim, Tegawendé F. Bissyandé, Jacques Klein, Yves Le Traon, "DigBug – Pre/Post-processing Operator Selection for Accurate Bug Localization," The Journal of Software Systems (JSS), Vol 189, Article 111300, 2022. [Published]
- Deheng Yang, Kui Liu, Dongsun Kim, Anil Koyuncu, Kisub Kim, Haoye Tian, Yan Lei, Xiaoguang Mao, Jacques Klein, and Tegawendé F. Bissyandé, "Where were the Repair Ingredients for Defects4j Bugs?" Empirical Software Engineering (EMSE), Vol. 26, No. 6, pp.1-33, 2021. [Published]
- Raphael Sirres, Tegawendé F. Bissyandé, Dongsun Kim, David Lo, Jacques Klein, Kisub Kim, and Yves Le Traon, "Augmenting and Structuring User Queries to Support Efficient Free-Form Code Search," Empirical Software Engineering (EMSE), Vol. 23, No. 5, pp.2622-2654, 2018. [Published]
- Jaekwon Lee, Kisub Kim, Yong-Hyeon Lee, Jang-Eui Hong, Young-Hoon Seo, Byung-Do Yang, and

Woosung Jung, "Extracting the Source Code Context to Predict Import Changes using GPES," KSII Transactions on Internet and Information Systems, Vol. 11, No. 2, pp.1234-1249, 2017. [Published]

- Yong-Hyeon Lee, Kisub Kim, Jaekwon Lee, and Woosung Jung, "Design and Implementation of a Data Extraction Tool for Analyzing Software Changes," Journal of The Korea Society of Computer and Information, Vol. 21, No. 9, pp.65-75, 2016. [Published]

Conference Proceedings

- Kisub Kim, Xin Zhou, Dongsun Kim, Jaekwon Lee, Tegawendé F Bissyandé, Jacques Klein, Kui Liu, and David Lo, "Double-blind," The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), 2023. [Under Review]
- Martin Weyssow, Xin Zhou, Kisub Kim, David Lo, and Houari Sahraoui, "Double-blind," The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), 2023. [Under Review]
- Ivana Clairine Irsan, Ting Zhang, Ferdian Thung, Kisub Kim, and David Lo, "PICASO - Enhancing API Recommendations with Relevant Stack Overflow Posts," Proceedings of the 20th International Conference on Mining Software Repositories (MSR), 2023. [Under Review]
- Xin Zhou, Kisub Kim, Bowen Xu, Donggyun Han, Junda He, and David Lo, "Generation-based Code Review Automation: How Far Are We?", The 31st IEEE/ACM International Conference on Program Comprehension (ICPC), Melbourne, Australia, 2023.
- Ivana Clairine Irsan, Ting Zhang, Ferdian Thung, Kisub Kim, and David Lo, "Multi-source API Recommendation", Proceedings of the 30th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER), Macao, China, 2023.
- Kui Liu, Shangwen Wang, Anil Koyuncu, Kisub Kim, Tegawendé F Bissyandé, Dongsun Kim, Peng Wu, Jacques Klein, Xiaoguang Mao, Yves Le Traon, "On the Efficiency of Test Suite based Program Repair: A Systematic Assessment of 16 Automated Repair Systems for Java Programs", In Proceedings of the 42th International Conference on Software Engineering (ICSE), Seoul, Korea, 2020.
- Kui Liu, Dongsun Kim, Tegawendé F Bissyandé, Taeyoung Kim, Kisub Kim, Anil Koyuncu, Suntae Kim, Yves Le Traon, "Learning to spot and refactor inconsistent method names", In Proceedings of the 41th International Conference on Software Engineering (ICSE), Montreal, Canada, 2019.
- Kisub Kim, Dongsun Kim, Tegawendé F. Bissyandé, Eunjong Choi, Li Li, Jacques Klein, and Yves Le Traon, "FaCoY - A Code-to-Code Search Engine," In Proceedings of the 40th International Conference on Software Engineering (ICSE), Gothenburg, Sweden, 2018.
- Kui Liu, Dongsun Kim, Li Li, Anil Koyuncu, Kisub Kim, and Tegawendé F. Bissyandé, "Live Search of Fix Ingredients for Automated Program Repair," In Proceedings of the 25th Asia-Pacific Software Engineering Conference (APSEC), Nara, Japan, 2018.
- Jaekwon Lee, Kisub Kim, and Woosung Jung, "A Distributed Survey Automation Based on a Customizable Form Template," In Proceedings of the 11th KIPS International Conference on Ubiquitous Information Technologies and Applications (CUTE), Bangkok, Thailand, 2016.
- Jaekwon Lee, Yonghyeon Lee, Kisub Kim, Jang-Eui Hong, and Woosung Jung, "GEPS: Supporting Source Code Analysis by Extracting the Evolutionary History of Software Structure and Quality," In Proceedings of the 11th Asia Pacific International Conference on Information Science and Technology (APIC-IST), Sapporo, Japan, 2016.
- Jaekwon Lee, Kisub Kim, and Woosung Jung, "Identifying a Component Co-usability using Similarity Metric," In Proceedings of the 18th Korea Conference on Software Engineering (KCSE), Gangwon, Korea, 2016, Awarded as Outstanding Short Paper.
- Yonghyeon Lee, Kisub Kim, and Woosung Jung, "Analyzing Developer's Share of Code Based on

Abstract Syntax Tree," In Proceedings of the Korean Society of Computer Information Conference (KSCI), Jeju, Korea, 2015.

PATENT

- Woosung Jung, Jaekwon Lee, and Kisub Kim, "Method for Recommending Component of Software Based on Identifying Component Co-usability and Recording Medium thereof." Korea Patent 10-2016-0061506 issued May 19, 2016.

EXTERNAL SERVICE PROFESSIONAL

- Program Committee - Research Track, International Conference on Program Comprehension (ICPC), 2023.
- Program Committee - Post Proceedings, European Conference on Software Architecture (ECSA), 2022.
- Organizing Committee, International Workshop on Mining Software Repositories for Software Architecture (MSR4SA), 2022.
- Poster Session Curator - SMU side, The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), 2022.
- Web Chair, International Conference on Program Comprehension (ICPC), 2020.
- Student Volunteer, International Conference on Software Engineering (ICSE), 2020.
- Part of Review Committee, ICSE 2018 - 2023, MSR 2023, ICPC 2023, ASE (journal) 2023, TSE 2022, SPE 2022, JSME 2022, NEUCOM 2022, IST 2022, ASE 2018 - 2021, EMSE 2020, SANER 2018 - 2020, JSS 2020, ISSTA 2018 - 2019, ICSME 2018 - 2019.

TEACHING & RESEARCH GUIDANCE

- Research Guidance, Xin Zhou, Ph.D. Student, Source Code Representation using Deep Learning Techniques, SMU, Current.
- Research Guidance, Ivana Clairine Irsan, Research Engineer, Deep API Recommendation Systems, SMU, Current.
- Research Guidance, Martin Weyssow, PhD student, Continual Learning on Large Language Models, Université de Montréal. Current.
- Research Guidance, Qin Shen, Undergraduate Student, Automatic Program Repair with Deep Learning, SMU, 2023.
- Research Guidance, Gregory Gao Zhan, Master Student, Investigation on Imperative Features of Source Code, SMU, 2023.
- Thesis Guidance, Jaekwon Lee, Ph.D., WCET and Priority Assignment Analysis of Real-Time Systems using Search and Machine Learning, UL, 2022.
- Thesis Guidance, Arthur Sawadogo, Ph.D., Overcoming Zero-Day Vulnerabilities in Open Source Softwares - An Automatic Approach based on Development Artifact Analysis, Université du Québec à Montréal, 2022.
- Guest Lecture (20 students), Introduction to Semantic Code Search, Sabanci University, 2022.
- Teaching Assistant (including assessment duty for 32 students), Creative Engineering Design, Chungbuk National University, 2016.
- Teaching Assistant (including assessment duty for 32 students), System Design Engineering, Chungbuk National University, 2016.
- Teaching Assistant (including assessment duty for 9 students), Understanding Object Oriented,

Chungbuk National University, 2016.

- Teaching Assistant (including assessment duty for 28 students), Software Engineering, Chungbuk National University, 2015.
- Teaching Assistant (including assessment duty for 28 students), Data Structure, Chungbuk National University, 2015.

OTHER EXPERIENCE

- Teaching assistant, Creative Engineering Design, System Design Engineering, and Understanding Object Oriented World, Feb 2016 - Jun 2016.
- Teaching assistant, Software Engineering and Data Structure, Aug 2015 - Dec 2015.
- Backend Developer, Developer the server-side application for an android application providing stock-related information, Venture Team, Jul 2014 - Dec 2015.
- System Engineer, Developing Order Communication System and Electric Medical Record Program, Kyung Hee University Medical Center, May 2014 - Feb 2015.
- Research Intern, Monitoring mixed issues, Electronics and Telecommunications Research Institute, NLP Lab at Chungbuk National University Feb 2013 - Mar 2014.
- Student Competitor, ACM-ICPC (International Collegiate Programming Contest) Representative of Chungbuk National University, Team 'Falcon', Nov 2012.
- Penetration Tester, Security vulnerability analysis and penetration test of computer network, Security Team in Chungbuk National University, Apr 2012 - Dec 2012.
- Student Competitor, ACM-ICPC (International Collegiate Programming Contest) Representative of Chungbuk National University, Team 'Illuminati', Nov 2011.
- Sergeant, Secretary of a General, Korean Army May 2008 - Apr 2010.

Honors and Awards

- Individual PhD Research Grant (4 years), National Research Foundation of Luxembourg, 2018 - 2021.
- 2nd place awarded, Talent Donation Contest by CBNU, Dec 2015.
- 3rd place awarded, Idea Contest by CBNU, Team 'Portal', Nov 2015.
- 2nd place awarded, Venture Competition by TWIM Corp, Team 'Portal', Nov 2015.
- Selected, Patent Support Project by Knowledge Asset Center, Sep 2015.
- 3rd place awarded, Venture Competition by CBNU, Team 'IPSE', Jan 2013.
- 1st Class Undergraduate Scholarship, Chungbuk National University, 2012 - 2013.