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👤 Gender: Male

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Education Background

2014 – 2022 **Ph.D. in Computer Science** @Tampere University.
Thesis title: *Data-Driven Analysis towards Monitoring Software Evolution by Continuously Understanding Changes in Users' Needs*
Supervised by Dr. Zheyang Zhang, Prof. Konstantinos Stefanidis

2013 – 2017 **M.Sc. in Internet and Game Studies** @University of Tampere.
Thesis title: *Motivation-oriented Scenario-based Gamification Design Method using the User Requirements Notation Modeling*
Supervised by Prof. Juho Hamari, Dr. Jonna Koivisto

2009 – 2013 **M.Sc. in Software Engineering** @University of Tampere.
Thesis title: *Research on Agile Process Models in Mobile Application Maintenance*
Supervised by Dr. Zheyang Zhang, Prof. Jyrki Nummenmaa
Minor Studies: Asian Studies in Business and Business Culture

2003 – 2007 **B.Sc. in Software Engineering** @Northeastern University (China).
Thesis title: *Research and Design of Internet Grading System - Answer Sheet Information Processing Subsystem*
Supervised by Prof. Bin Zhang

Employment

2.2025 – **Research Fellow (RTDa)**
Faculty of Engineering, Free University of Bozen-Bolzano
Tasks: Research work, thesis supervision, funding application, teaching

1.2023 – 1.2025 **Post-Doc Researcher**
Faculty of ITEE, University of Oulu
Tasks: Research work, thesis supervision, funding application, teaching

4.2022 – 6.2023 **Post-Doc Researcher**
Faculty of ITC, Tampere University
Tasks: Research work, thesis supervision, funding application, teaching assistance

10.2020 – 4.2022 **Doctoral Researcher**
Faculty of ITC, Tampere University
Tasks: Research work, thesis supervision, funding application, teaching assistance

1.2017 – 12.2018 **Researcher and Teaching Staff**
Faculty of Natural Sciences, University of Tampere
Tasks: Doctoral degree-based research work, master thesis supervision, funding application, exam supervision, teaching assistance

9.2010 – 2.2011 **Project Manager**
[Project] Input Device Testing Environment built on FPS Game @TAUCHI
Tasks: Team management, scheduling, process optimization, documentation

5.2010 – 8.2010 **Software Designer and Developer**
[Project] Wearable Computing @Demola New Factory
Tasks: Product ideas creation, prototyping, software programming

Employment (continued)

9.2009 – 2.2010 **Software Designer and Developer**
[Project] TAMBIC: Tampere Bi-lingual Corpus @Department of English Philology,
University of Tampere
Tasks: Back-end programming, prototyping, UI design

Skills

Languages	■ Chinese (Native), English (C1), Finnish (B1), Japanese (N4)
Coding	■ Python, C, C++, VB, SQL, PHP, Java, C#
Databases	■ MySQL, PostgreSQL
Web Dev	■ HTML, CSS, JavaScript, JQuery
Misc.	■ Scrum & Kanban, Web crawling, Data Science, Game and Gamification Design, MS Office, Photoshop, GenAI & Prompt Engineering

Awards and Certificates

Awards

2019 ■ **Best Paper** @GamiFIN Conference
2015 ■ **Best Paper** @ICSEA Conference

Certification

2024 ■ **Generative AI for Software Developers Specialization**. Certified by IBM via Coursera (Credential ID: HJYIBGIMAK5E)
■ **Generative AI Fundamentals Specialization**. Certified by IBM via Coursera (Credential ID: W44NPJXBTN4S)

2020 ■ **Mathematics for Machine Learning Specialization**. Certified by Imperial College London via Coursera (Credential ID: QUH76XZE5AGV)

2019 ■ **IBM Data Science Professional Certificate Specialization**. Certified by IBM via Coursera (Credential ID: UVKHBD8EYDKT)
■ **Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning**. Certified by Deeplearning.ai via Coursera (Credential ID: C4W2STPFKKLX)
■ **Finnish National Certificate of Language Proficiency, Finnish Language at Intermediate Level**. Certified by Finnish National Agency for Education

Research Funding

- Main participant in EU Horizon funding application (HORIZON-CL4-2024-DIGITAL-EMERGING-01-22) 2024
- Main participant in EU Horizon funding application (HORIZON-CL4-2023-DATA-01-04) 2023
- Main participant in Business Finland funding application 2023
- CNESS research funding 2022
- Main participant in funding application Ulla Tuominen Funding 2020
- Doctoral student funding from Faculty of Natural Sciences at University of Tampere 2017 – 2018
- Main Participant in funding application SKR Pirkanmaa Regional Funding 2018, 2020
- Main participant in funding application to KoneenSäätiö 2017
- Main participant in funding application to Academy of Finland 2014, 2015, 2017, 2019, 2023

Community Service

2025

- **Web Chair.** The 11th European Conference On Service-Oriented And Cloud Computing (ESOCC)
- **PC member.** The 33rd International Conference on Information Systems Development (ISD)
- **PC member.** The 26th International Conference on Product-Focused Software Process Improvement (PROFES)

2024

- **PC member.** The 18th International IEEE Conference On Service-Oriented System Engineering (IEEESOSE)
- **PC member.** The 32nd International Conference on Information Systems Development (ISD)
- **Track Co-Chair.** The IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER)
- **Workshop Co-Chair.** The 1st Workshop on Edge Software Architecture (ESA)

2023

- **Proceeding Chair.** The 24th International Conference on Product-Focused Software Process Improvement (PROFES)
- **Proceeding Chair.** The 49th Euromicro Conference on Software Engineering and Advanced Applications (SEAA)
- **Proceeding Chair.** The 16th International Conference on the Quality of Information and Communications Technology (QUATIC)
- **Web Chair & Volunteer.** The International Conference on Evaluation and Assessment in Software Engineering (EASE)

2021

- **Volunteer.** International Conference on Software Engineering (ICSE).

Teaching Activities

2025

- **Lecturer.** Introduction to Programming (UG). Free University of Bozen-Bolzano.
- **Lecturer.** Software Project Management (UG). Free University of Bozen-Bolzano.

2024

- **Lecturer.** Databases (UG). University of Oulu/Nanjing Institute of Technology.
- **Lecturer.** Software Development, Maintenance and Operations (Grad). University of Oulu.

2023

- **Lecturer.** Databases (UG). University of Oulu/Nanjing Institute of Technology.
- **Lecturer.** Software Development, Maintenance and Operations (Grad). University of Oulu.
- **Teaching Assistant.** Software Product and Process Management (Grad). Tampere University

2022

- **Teaching Assistant.** Software Product and Process Management (Grad). Tampere University

2021

- **Teaching Assistant.** Requirements Engineering (Grad). Tampere University.

References

Konstantinos Stefanidis

Professor

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Tomas Cerny

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Free University of Bozen-Bolzano, Italy

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Publication List

Journal

- 1 M. Esposito, X. Li, S. Moreschini, N. Ahmad, T. Cerny, K. Vaidhyanathan, V. Lenarduzzi, and D. Taibi, “Generative ai for software architecture. applications, trends, challenges, and future directions,” *Journal of Systems and Software*, 2025.
- 2 X. Li, D. A. d’Aragona, T. Cerny, V. Lenarduzzi, D. Taibi, and A. Janes, “Exploring microservice ownership and organizational coupling in open-source projects: An empirical study,” *Computing*, vol. 107, no. 4, pp. 1–35, 2025.
- 3 S. Moreschini, S. Pour, I. Lanese, D. Balouek, J. Bogner, X. Li, F. Pecorelli, J. Soldani, E. Truyen, and D. Taibi, “Ai techniques in the microservices life-cycle: A systematic mapping study,” *Computing*, vol. 107, no. 4, p. 100, 2025.
- 4 S. Schneider, A. Bakhtin, X. Li, J. Soldani, A. Brogi, T. Cerny, R. Scandariato, and D. Taibi, “Comparison of static analysis architecture recovery tools for microservice applications,” *Empirical Software Engineering*, vol. 30, no. 5, p. 128, 2025.
- 5 A. S. Abdelfattah, T. Cerny, J. Yero Salazar, X. Li, D. Taibi, and E. Song, “Assessing evolution of microservices using static analysis,” *Applied Sciences*, vol. 14, no. 22, p. 10 725, 2024.
- 6 R. Su, X. Li, and D. Taibi, “From microservice to monolith: A multivocal literature review,” *Electronics*, 2024.
- 7 A. Janes, X. Li, and V. Lenarduzzi, “Open tracing tools: Overview and critical comparison,” *Journal of Systems and Software*, vol. 204, p. 111 793, 2023, ISSN: 0164-1212. DOI: <https://doi.org/10.1016/j.jss.2023.111793>.
- 8 X. Li, S. Moreschini, Z. Zhang, F. Palomba, and D. Taibi, “The anatomy of a vulnerability database: A systematic mapping study,” *Journal of Systems and Software*, vol. 201, p. 111 679, 2023, ISSN: 0164-1212. DOI: <https://doi.org/10.1016/j.jss.2023.111679>.
- 9 X. Li, S. Moreschini, F. Pecorelli, and D. Taibi, “Ossara: Abandonment risk assessment for embedded open source components,” *IEEE Software*, vol. 39, no. 04, pp. 48–53, 2022.
- 10 X. Li, S. Moreschini, Z. Zhang, and D. Taibi, “Exploring factors and metrics to select open source software components for integration: An empirical study,” *Journal of Systems and Software*, vol. 188, p. 111 255, 2022, ISSN: 0164-1212. DOI: <https://doi.org/10.1016/j.jss.2022.111255>.
- 11 S. Moreschini, F. Pecorelli, X. Li, S. Naz, D. Hästbacka, and D. Taibi, “Cloud continuum: The definition,” *IEEE Access*, 2022.
- 12 X. Li, Z. Zhang, and K. Stefanidis, “A data-driven approach for video game playability analysis based on players’ reviews,” *Information*, vol. 12, no. 3, p. 129, 2021.
- 13 X. Li, B. Zhang, Z. Zhang, and K. Stefanidis, “A sentiment-statistical approach for identifying problematic mobile app updates based on user reviews,” *Information*, vol. 11, no. 3, p. 152, 2020.

Conference

- 1 S. Schneider, A. Bakhtin, X. Li, J. Soldani, A. Brogi, T. Cerny, R. Scandariato, and D. Taibi, “Comparison of static analysis architecture recovery tools for microservice applications,” in *21st International Conference on Mining Software Repositories (MSR2024)*, 2024 (Registered Report).
- 2 X. Li, N. Ahmad, T. Cerny, A. Janes, V. Lenarduzzi, and D. Taibi, “Toward organizational decoupling in microservices through key developer allocation,” in *2025 IEEE 22nd International Conference on Software Architecture Companion (ICSA-C)*, IEEE, 2025, pp. 16–20.

- 3 A. Righi, A. Aneggi, X. Li, and A. Janes, "Demonstration paper: Avoiding wrong microservice cuts via git metadata analysis," in *2025 IEEE International Conference on Service-Oriented System Engineering (SOSE)*, IEEE, 2025, pp. 51–55.
- 4 M. A. Akbar, M. Esposito, S. Hyrynsalmi, K. D. Kumar, V. Lcnarduzzi, X. Li, A. Mehraj, T. Mikkonen, S. Moreschini, N. Mäkitalo, et al., "6gsoft: Software for edge-to-cloud continuum," in *2024 50th Euromicro Conference on Software Engineering and Advanced Applications (SEAA)*, IEEE, 2024, pp. 499–506.
- 5 A. Bakhtin, X. Li, and D. Taibi, "Temporal community detection in developer collaboration networks of microservice projects," in *18th European Conference on Software Architecture (ECSA2024)*, 2024.
- 6 D. A. d'Aragona, A. Bakhtin, X. Li, R. Su, L. Adams, E. Aponte, F. Boyle, P. Boyle, R. Koerner, J. Lee, F. Tian, Y. Wang, J. Nyysölä, E. Quevedo, S. Md Rahaman, A. S. Abdelfattah, M. Mäntylä, T. Cerny, and D. Taibi, "A dataset of microservices-based open-source projects," in *21st International Conference on Mining Software Repositories (MSR2024)*, 2024.
- 7 D. A. d'Aragona, X. Li, and A. Janes, "Understanding the causes of microservice logical coupling: An exploratory study," in *The 1st International Workshop New Trends in Software Architecture (SATrends2024)*, 2024.
- 8 X. Li and M. Albano, "A framework for microservice organizational structure optimization," in *The 1st International Workshop New Trends in Software Architecture (SATrends2024)*, 2024.
- 9 X. Li, F. Calefato, V. Lenarduzzi, and D. Taibi, "Toward a collaboration optimization in microservice projects based on developer personalities," in *The 21st International Conference on Software Architecture (ICSA 2024)*, 2024.
- 10 X. Li, V. Lenarduzzi, and D. Taibi, "A data-driven analysis of player personalities for different game genres," in *1st Foundations of Applied Software Engineering for Games Workshop (FaSE4Games'24)*, 2024.
- 11 R. Su and X. Li, "Modular monolith: Is this the trend in software architecture?" In *The 1st International Workshop New Trends in Software Architecture (SATrends2024)*, 2024.
- 12 S. Zhao, X. Xia, B. Fitzgerald, X. Li, V. Lenarduzzi, D. Taibi, R. Wang, W. Wang, and C. Tian, "Motivating open source collaborations through social network evaluation: A gamification practice from alibaba," in *the 46th International Conference on Software Engineering: Software Engineering in Practice (ICSE-SEIP)*, 2024.
- 13 C. Allen, X. Li, A. Elsayed, T. Cerny, and D. Taibi, "Comparing cost and performance of microservices and serverless in aws: Ec2 vs lambda," in *The Southwest Data Science Conference (SDSC 2023)*, 2023.
- 14 D. Amoroso d'Aragona, X. Li, T. Cerny, A. Janes, V. Lenarduzzi, and D. Taibi, "One microservice per developer: Is this the trend in oss?" In *European Conference on Service-Oriented and Cloud Computing*, Springer, 2023, pp. 19–34.
- 15 A. Huizinga, G. Parker, A. Elsayed, X. Li, T. Cerny, and D. Taibi, "Detecting microservice anti-patterns using interactive service call graphs: Effort assessment," in *The Southwest Data Science Conference (SDSC 2023)*, 2023.
- 16 X. Li, D. A. d'Aragona, and D. Taibi, "Evaluating microservice organizational coupling based on cross-service contribution," in *International Conference on Product-Focused Software Process Improvement*, Springer, 2023, pp. 435–450.
- 17 X. Li, A. Elsayed, R. Su, J. Lee, E. Aponte, R. Koerner, T. Cerny, and D. Taibi, "Metrics and models for developer collaboration analysis in microservice-based systems. a review," in *the 17th International Conference on Software Process and Product Measurement (MENSURA)*, 2023.

18 X. Li, A. Elsayed, J. Yero, D. A. d’Aragona, T. Cerny, and D. Taibi, “Analyzing organizational structure of microservice projects based on contributor collaboration,” in *The 17th IEEE International Conference on Service-Oriented System Engineering (IEEE SOSE)*, IEEE, 2023.

19 R. Su, X. Li, and D. Taibi, “Back to the future: From microservice to monolith,” in *5th International Conference on Microservices*, 2023.

20 X. Li, S. Moreschini, A. Filatova, and D. Taibi, “Knowledge management challenges for ai quality,” in *2022 IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER)*, IEEE, 2022, pp. 1295–1296.

21 F. Lomio, S. Moreschini, X. Li, and V. Lenarduzzi, “Anomaly detection in cloud-native systems,” in *48th Euromicro Conference on Software Engineering and Advanced Applications (SEAA 2022)*, 2022.

22 S. Moreschini, F. Pecorelli, X. Li, S. Naz, M. Albano, D. Hästbacka, and D. Taibi, “Cognitive cloud: The definition,” in *19th International Conference on Distributed Computing and Artificial Intelligence*, Springer, 2022.

23 X. Li and S. Moreschini, “Oss pesto: An open source software project evaluation and selection tool,” in *IFIP International Conference on Open Source Systems*, Springer, 2021, pp. 42–50.

24 X. Li, “Towards factor-oriented understanding of video game genres using exploratory factor analysis on steam game tags,” in *2020 IEEE International Conference on Progress in Informatics and Computing (PIC)*, IEEE, 2020, pp. 207–213.

25 X. Li and B. Zhang, “A preliminary network analysis on steam game tags: Another way of understanding game genres,” in *Proceedings of the 23rd International Conference on Academic Mindtrek*, 2020, pp. 65–73.

26 C. Lu, X. Li, T. Nummenmaa, Z. Zhang, and J. Peltonen, “Patches and player community perceptions: Analysis of no man’s sky steam reviews,” in *DiGRA’20-Proceedings of the 2020 DiGRA International Conference*, DiGRA, 2020.

27 C. Lu, J. Peltonen, T. Nummenmaa, X. Li, and Z. Zhang, “What makes a trophy hunter? an empirical analysis of reddit discussions,” in *4th International GamiFIN Conference, GamiFIN 2020*, 2020.

28 B. Zhang and X. Li, “Bibliography-based social network analysis and geo-location map of gamification,” in *European Conference on Games Based Learning*, Academic Conferences International Limited, 2020, p. 684.

29 X. Li, “Research on software project developer behaviors with k-means clustering analysis,” in *SSSME 2019: Joint Proceedings of the Summer School on Software Maintenance and Evolution*, CEUR-WS, 2019.

30 X. Li, C. Lu, J. Peltonen, and Z. Zhang, “A statistical analysis of steam user profiles towards personalized gamification,” in *3rd International GamiFIN Conference, GamiFIN 2019*, CEUR-WS, 2019.

31 M. Stratigi, X. Li, K. Stefanidis, and Z. Zhang, “Ratings vs. reviews in recommender systems: A case study on the amazon movies dataset,” in *European conference on advances in databases and information systems*, Springer, 2019, pp. 68–76.

32 X. Li, “A method to support gamification design practice with motivation analysis and goal modeling,” in *Proceedings of the 2nd International GamiFIN Conference, GamiFIN 2018*, CEUR-WS, 2018.

33 X. Li, Z. Zhang, and T. Poranen, “Scenario-driven continuous mobility requirements analysis in mobile app maintenance,” in *4th Workshop on Continuous Requirements Engineering. CRE Workshop*, CEUR-WS, 2018.

34 X. Li, Z. Zhang, and K. Stefanidis, “Mobile app evolution analysis based on user reviews,” in *New Trends in Intelligent Software Methodologies, Tools and Techniques*, IOS Press, 2018, pp. 773–786.

35 X. Li, Z. Zhang, and K. Stefanidis, “Sentiment-aware analysis of mobile apps user reviews regarding particular updates,” 2018, p. 109.

- 36 X. Li, B. Upreti, and Z. Zhang, "Mobility requirements engineering tool (more)," in *2016 IEEE 24th International Requirements Engineering Conference (RE)*, IEEE, 2016, pp. 409–410.
- 37 X. Li and Z. Zhang, "A user-app interaction reference model for mobility requirements analysis," in *ICSEA 2015: The Tenth International Conference on Software Engineering Advances*, 2015, pp. 170–177.
- 38 X. Li, Z. Zhang, and J. Nummenmaa, "Models for mobile application maintenance based on update history," in *2014 9th International Conference on Evaluation of Novel Approaches to Software Engineering (ENASE)*, IEEE, 2014, pp. 1–6.

Thesis

- 1 X. Li, "Data-driven analysis towards monitoring software evolution by continuously understanding changes in users' needs," Doctoral Thesis, Tampere University, 2022.
- 2 X. Li, "Motivation-oriented scenario-based gamification design method using the user requirements notation modeling," Master Thesis, University of Tampere, 2017.
- 3 X. Li, "Research on agile process models in mobile application maintenance," Master Thesis, University of Tampere, 2013.