

Asif Imran

Assistant Professor of Teaching
Department of Computer Science and Engineering
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Academic and Research Interests

My academic interest focuses on student success. My efforts are focused on teaching students about the different topics of computer science and engineering. I mentor students to motivate them towards completion of their degrees and help them in planning for higher studies. My research interest focuses on working with students to optimize software resource utilization through code smell refactoring in software running on a cloud environment. My efforts combine cloud computing, software engineering, and machine learning to design and develop solutions that optimize resource usage in large-scale computing systems.

Education

Ph.D., Computer Science and Engineering, **University at Buffalo**, Amherst, NY 14260, USA, awarded: July 2022

Thesis: Prediction and analysis of impact on resource usage due to code smell refactoring

Advisor: Prof. Tevfik Kosar

MS, Software Engineering, **IIT, University of Dhaka**, Dhaka 1000, Bangladesh, July 2014

Thesis: Provenance based security assurance in cloud computing

Advisor: Prof. Kazi Muheymin-us Sakib

BS, Information Technology, **IIT, University of Dhaka**, Dhaka 1000, Bangladesh, December 2012

Academic Experience

- ABET Committee member at CSUSM, Dept. of Computer Science and Software Engineering, California State University San Marcos, CA, USA, 2022
- Research assistant, Dept. of Computer Science and Engineering, University at Buffalo, NY, USA, 2021
- Research intern, IBM T. J. Watson Research Lab, Yorktown Heights, NY, USA, 2020
- Course instructor, Dept. of Computer Science and Engineering, University at Buffalo, NY, USA, 2019
- Teaching Assistant of Operating Systems, Dept. of Computer Science and Engineering, University at Buffalo, NY, USA, 2018

- Teaching Assistant of Parallel and Distributed Programming, Dept. of Computer Science and Engineering, University at Buffalo, NY, 2017
- Lecturer, Institute of Information Technology (IIT), University of Dhaka, Bangladesh, 2014-2017

Honors and rewards

2024 NSF EAGER grant winner: amount funded USD 3,50,000
CSUSM Summer Grant Writing Bootcamp, 2023
Workshop on Teaching First-Generation Students, 2023
Best Presenter Award, ESSE conference, 2022
Global Innovation Challenge LIGHT Fellow, 2019
CSE Chair's Fellowship, University at Buffalo, 2017
Academic excellence gold medal winner, IIT, University of Dhaka 2015

Publication

Refereed Journal Articles

1. Imran, A. and Kosar, T., 2021. Software Sustainability: A Systematic Literature Review and Comprehensive Analysis. *Journal of Systems and Software*, Elsevier publications (under review).
2. Imran, A., Aljawarneh, S.A. and Sakib, K., 2016. Web data amalgamation for security engineering: Digital forensic investigation of open source cloud. *J. Univers. Comput. Sci.*, 22(4), pp.494-520.
3. Imran, A., Ul Gias, A., Rahman, R. and Sakib, K., 2013. Provitsec: a provenance cognition blueprint ensuring integrity and security for real life open source cloud. *International Journal of Information Privacy, Security and Integrity*, 1(4), pp.360-380.

Refereed Conference Articles

4. Shah R.N., Mohamed S.A., Imran, A., Kosar T. (2023). CloudScent: a model for code smell analysis in open-source cloud. In *Proceedings of the 2023 IEEE International Conference on Cloud Computing Technology and Science (CloudCom)*, pages 69-75. DOI: 10.1109/CloudCom59040.2023.00024.
5. Imran, A. (2023). Investigate How Developers and Managers View Security Design in Software. In *Proceedings of the 18th International Conference on Evaluation of Novel Approaches to Software Engineering*, ISBN 978-989-758-647-7, ISSN 2184-4895, pages 693-700. DOI: 10.5220/0011994700003464.
6. Imran, A. and Kosar, T., 2022. URegM: a unified prediction model of resource consumption for refactoring software smells in open-source cloud. In *2022 3rd ACM European Symposium on Software Engineering (ESSE)*, ACM.
7. Imran, A. and Kosar, T., 2022. Qualitative analysis of the relationship between design smells and software engineering challenges. In *2022 3rd ACM European Symposium on Software Engineering (ESSE)*, ACM.
8. Imran, A. and Kosar, T., 2020. The Impact of Auto-Refactoring Code Smells on the Resource Utilization of Cloud Software. In *2020 International Conference on Software Engineering and Knowledge Engineering (SEKE)*, KSI Research.

9. Imran, A., 2019, September. Design smell detection and analysis for open source java software. In 2019 IEEE International Conference on Software Maintenance and Evolution (ICSME) (pp. 644-648). IEEE.
10. Nine, M.S.Z., Di Tacchio, L., Imran, A., Kosar, T., Bulut, M.F. and Hwang, J., 2018, December. Greendataflow: Minimizing the energy footprint of global data movement. In 2018 IEEE International Conference on Big Data (Big Data) (pp. 335-342). IEEE.
11. Imran, A., Nine, M.S., Guner, K. and Kosar, T., 2018, January. Onedatashare-a vision for cloud-hosted data transfer scheduling and optimization as a service [onedatashare-a vision for cloud-hosted data transfer scheduling and optimization as a service]. In Proceedings of the 8th International Conference on Cloud Computing and Services Science (Vol. 1).
12. Rawshan, L., Islam, J. and Imran, A., 2016. Identifying Overloaded Servers and Managing Dynamic Placement of Virtual machines in Cloud. *International Journal of Computer Applications*, 975, p.8887.
13. Shamsuddoha, M., Alam, M.S., Asif, S.A., Aljawarneh, S., Sakib, K. and Imran, A., 2015, September. CLBS-3: A Three-Tier Load Balancer for ensuring Fault-Tolerance of Software running in Open-Source Cloud. In Proceedings of the The International Conference on Engineering MIS 2015 (pp. 1-5).
14. Rawshan, L., Sakib, K. and Imran, A., 2015, September. Time-Waved Monitoring and Emergent Self Adaption of Software Components in Open Source Cloud. In Proceedings of the The International Conference on Engineering MIS 2015 (pp. 1-6).
15. Hasan, T., Imran, A. and Sakib, K., 2014, December. A case-based framework for self-healing paralysed components in Distributed Software applications. In The 8th International Conference on Software, Knowledge, Information Management and Applications (SKIMA 2014) (pp. 1-7). IEEE.
16. Imran, A., Dey, E.K. and Sakib, K., 2014. Active-Threaded Algorithms for Provenance Cognition in the Cloud preserving Low Overhead and Fault Tolerance. In 2014 Recent Advances in Information and Communication Technology (pp. 249-255).
17. Gias, A.U., Rahman, R., Imran, A. and Sakib, K., 2014. TFPaaS: Test-first Performance as a Service to Cloud for Software Testing Environment. In 2013 International Conference on Innovative Technologies (INTECH) (pp. 20-32).
18. Imran, A., Nahar, N. and Sakib, K., 2014, May. Watchword-oriented and time-stamped algorithms for tamper-proof cloud provenance cognition. In 2014 International Conference on Informatics, Electronics Vision (ICIEV) (pp. 1-6). IEEE.
19. Imran, A., Gias, A.U., Rahman, R., Seal, A., Rahman, T., Ishraque, F. and Sakib, K., 2014, March. Cloud-niagara: A high availability and low overhead fault tolerance middleware for the cloud. In 16th Int'l Conf. Computer and Information Technology (pp. 271-276). IEEE.
20. Rahman, R., Imran, A., Gias, A.U. and Sakib, K., 2013, August. A peer to peer resource provisioning scheme for cloud computing environment using multi attribute utility theory. In Third International Conference on Innovative Computing Technology (INTECH 2013) (pp. 132-137). IEEE.
21. Gias, A.U., Imran, A., Rahman, R. and Sakib, K., 2013, August. IVRIDIO: Design of a software testing framework to provide Test-first Performance as a service. In Third International Conference on Innovative Computing Technology (INTECH 2013) (pp. 520-525). IEEE.
22. Imran, A., Gias, A.U. and Sakib, K., 2012, July. An empirical investigation of cost-resource optimization for running real-life applications in open source cloud. In 2012 International Conference on High Performance Computing Simulation (HPCS) (pp. 718-723). IEEE.

23. Khaled, S.M., Islam, M.S., Rabbani, M.G., Tabassum, M.R., Gias, A.U., Kamal, M.M., Muctadir, H.M., Shakir, A.K., Imran, A. and Islam, S., 2009, November. Combinatorial color space models for skin detection in sub-continental human images. In International Visual Informatics Conference (pp. 532-542). Springer, Berlin, Heidelberg.

Publication in progress

24. Imran, A., Kosar, T., Zola, J., Bulut, F., 2021. The Impact of Code Smell Auto-refactoring on Application Resource Consumption. Submitted to the International Conference on Software Engineering (ICSE).

Other publications

25. Ami, A.S., Imran, A., Gias, A.U. and Sakib, K., 2020. Effects of Internship on Fresh Graduates: A case study on IIT, DU students. arXiv preprint arXiv:2008.07450.
26. Tabassum, M.R., Gias, A.U., Kamal, M., Muctadir, H.M., Ibrahim, M., Shakir, A.K., Imran, A., Islamm, S., Rabbani, M., Khaled, S.M. and Islam, M., 2010. Comparative study of statistical skin detection algorithms for sub-continental human images. arXiv preprint arXiv:1008.4206.

Conference presentations

1. "Investigate How Developers and Managers View Security Design in Software". 18th International Conference on Evaluation of Novel Approaches to Software Engineering (ENASE 2023), Prague, Czech Republic, April 2023.
2. "Eliminating code smells for greener software". Three minute thesis competition, University at Buffalo, NY, USA, February 2021.
3. "Analysis of software code smells and their affect on cloud resource usage". IBM intern talk. IBM T. J. Watson research Center, NY, USA, November 2020.
4. "Impact of batch refactoring code smells on software resource consumption". International Conference on Software Engineering and Knowledge Engineering (SEKE 2020), Pittsburgh, PA, USA, July 2020.
5. "Design Smell Analysis for Developing and Established Open Source Java Software". The International Conference on Software Maintenance and Evolution (ICSME), Cleveland, OH, USA, November 2019.
6. "How smells in large scale distributed software affect cpu and memory consumption?". CSE Grad Upbeat at University at Buffalo, NY, USA, November 2019.
7. "Improving software sustainability by elimination of code smells". Second Workshop on Software Sustainability. Organized by US Research Software Sustainability Institute, University of Illinois at Urbana-Champaign, October 2019.
8. "CLBS-3: A Three-Tier Load Balancer for ensuring Fault-Tolerance of Software running in Open-Source Cloud". The International Conference on Engineering and MIS, Istanbul, Turkey, June 2015.
9. "TFPaaS: Test first Performance as a Service to Cloud for Software Testing Environment". International Conference on Innovative Technologies (INTECH), London, UK, March 2014.
10. A peer to peer resource provisioning scheme for cloud computing environment using multi attribute utility theory. International Conference on Innovative Technologies (INTECH), London, UK, March 2014.

11. Cloud-niagara: A high availability and low overhead fault tolerance middleware for the cloud. IEEE International Conference on Computer and Information Technology (ICCIT), Dhaka, Bangladesh, February 2013.
12. "An empirical investigation of cost-resource optimization for running real-life applications in open source cloud." International Conference on High Performance Computing and Simulation (HPCS), Madrid, Spain, July 2012.

Teaching Experience

Semester	Course code	Course title	Number of students	Institution
Fall 2024	CSE 574	Introduction to Machine Learning	278	Univ. at Buffalo
Fall 2023	CS 542	Software Design Patterns	14	Cal State University San Marcos
Fall 2023	SE 481	Software Project Management	21	Cal State University San Marcos
Fall 2023	SE 451	Software Requirements and Design	32	Cal State University San Marcos
Spring 2023	SE 370	Software Engineering	33	Cal State University San Marcos
Spring 2023	CS 370	Software Engineering	40	Cal State University San Marcos
Fall 2022	CS 542	Software Design Patterns	24	Cal State University San Marcos
Fall 2022	CS 441	Software Engineering	36	Cal State University San Marcos
Fall 2019	CSE 421	Operating Systems	124	Univ. at Buffalo
Summer 2019	CSE 421	Operating Systems	14	Univ. at Buffalo
Summer 2019	CSE 478	Computer Vision and Image Processing	17	Univ. at Buffalo
Spring 2019	CSE 421	Operating Systems	110	Univ. at Buffalo
Fall 2018	CSE 421	Operating Systems	131	Univ. at Buffalo
Spring 2018	CSE 421	Operating Systems	122	Univ. at Buffalo
Fall 2017	CSE 481	Parallel and Distributed Programming	32	Univ. at Buffalo

Reference

Dr. Tefvik Kosar, Professor, Dept. of Computer Science and Engineering, University at Buffalo and Program Director at NSF

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