



Saad Shafiq

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EDUCATIONAL HISTORY

Degree/ Certificate	Institutions and awards
	<ul style="list-style-type: none">➤ Doctoral Researcher at LIT AI Lab➤ Distinction in research work
Ph.D. Computer Science 2019-2022	<ul style="list-style-type: none">➤ Dissertation: "Supporting the Triaging Process in Software Development"➤ Expertise: Deep learning, NLP, Reinforcement learning <p><i>Johannes Kepler University, Linz, Austria</i></p>
M.S Software Engineering Fall 2015-2017 (2 Years)	<ul style="list-style-type: none">➤ 3.46 CGPA /4.00➤ Distinction in course work, and Distinction (in terms of CGPA)➤ Thesis title: "Communication Patterns of Kanban Teams and their Impact on Iteration Performance and Quality: An Empirical Study" <p><i>National University of Computer and Emerging Sciences (NUCES), Islamabad, Pakistan</i></p>

Professional Experience

[Jan 2024] – [Current]
[Post-doc Researcher], [USC]

[June 2023] – [Jan 2024]
[Post-doc Researcher], [JKU]

- Tech. stack: Python, R, SQL, Git, Pandas, Numpy, Scikit, Keras, Tensorflow, Pytorch, Javascript, Vuejs
- Multivariate analysis, anomaly detection, LLMs

[June 2019] – [March 2023]
[Researcher], [JKU]

- Tech. stack: Python, R, SQL, Git, Pandas, Numpy, Scikit, Keras, Tensorflow, Pytorch, Neo4j
- Worked on problems including classification, clustering, regression, and optimization
- Implemented prototypes and POCs to improve software engineering life cycle using contemporary machine learning algorithms
- Worked with NLP techniques including topic extraction, LDA, and sentiment analysis
- Responsible for analyzing complex and large scale structured/unstructured datasets and converting into actionable insights
- Experienced in statistical analysis, applied machine learning, and making technicalities graspable for the stakeholders

[February 2019] – [May 2019]
[Blockchain Developer], [MTBC]

- Responsible for setting up a highly resilient and sustainable blockchain network architecture
- Ensured stable and robust distributed environment using Kubernetes
- Implemented Hyperledger fabric framework and worked on script automation
- Proficient in Hyperledger tools such as Hyperledger Composer and Hyperledger Explorer
- Written business logic chaincodes in golang and node.js
- Hands on experience with writing smart contracts in solidity (Ethereum)
- Created DApps (Distributed applications) with exposed REST APIs'

[January 2018] – [February 2019]
[Software Engineer], [MTBC]

- Tech. stack: C#, .NET framework, SQL, razor pages, ASP.NET
- Responsible for deployments to QA, Staging and Production environment as being the release owner in the team
- Responsible for merging the code of entire team on TFS
- Rigorously followed agile methodologies (SCRUM, Kanban) in the development process using JIRA
- Implemented the latest hashing algorithm in the system
- Created stored procedures for reporting and analytics
- Performed JSON manipulation and Schema validation
- Enhanced product's performance by implementing bulk insertions to database and enabling multi-threading

- Acted as a liaison between Product Owners and the team to ensure development and operations are moving in the right direction
- Designed the architecture of new modules of the system
- Developed Web APIs for new modules in the system
- Managed support and helpdesk team to always cater to client needs
- Analyzed and evaluated client requests in order to develop new functionality

[August 2016] – [October 2017]

[Research Assistant], [National University of Computer and Emerging Sciences]

- Conducted research to identify major research gaps in the area of Requirements Engineering, Machine Learning, and Agile Software Development Processes
- Performed Social Network Analysis on large datasets using UCINET and Gephi
- Published research articles in Tier-1 and high impact journals and conferences
- Collaborated with the active researchers in the domain of Requirements Engineering, Data Science, Machine Learning, and Software Testing
- Analyzed large datasets and produced meaningful insights using contemporary machine learning algorithms

[2015] – [2017]

[Freelancer], [Fiverr/Local]

- Full-Stack Asp.net Development
- Implemented Zendesk, Freshdesk for implementation and support operations
- Create infographic, company's business projection-oriented videos

[January 2015] – [February 2015]

[Intern], [Target Systems]

- Perform WorkFlow Management
- Work on different modules of company's CRM product

[June 2014] – [July 2014]

[Intern], [Fauji Fertilizers Bin Qasim Limited (FFBL)]

- Assist in support operations
- Create purchase orders using SAP Business Objects
- Use Lotus mail to interact with company's employees

[June 2013] – [August 2013]

[Intern], [Pakistan Telecom Company Limited (PTCL)]

- Use Oracle Siebel (CRM) to provide customer support
- Explore SAP Enterprise Resource Planning

Publications

- Marchezan, Luciano, Wesley KG Assunção, Edvin Herac, **Saad Shafiq**, and Alexander Egyed. "Exploring Dependencies Among Inconsistencies to Enhance the Consistency Maintenance of Models." In 2024 IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER), pp. 147-158. IEEE, 2024. **[Distinguished Paper Award]**
- **Saad Shafiq**, Christoph Mayr-Dorn, Atif Mashkoor, and Alexander Egyed. "Balanced knowledge distribution among software development teams—Observations from open-

and closed-source software development." *Journal of Software: Evolution and Process* (2024): e2655.

- Sejfia, Adriana, Satyaki Das, **Saad Shafiq**, and Nenad Medvidović. "Toward Improved Deep Learning-based Vulnerability Detection." In *2024 IEEE/ACM 46th International Conference on Software Engineering (ICSE)*, pp. 730-741. IEEE Computer Society, 2023.
- Azeem, Muhammad Ilyas, **Saad Shafiq**, Atif Mashkooor, and Alexander Egyed. "Code smells in pull requests: An exploratory study." *Software: Practice and Experience* (2023).
- **Shafiq, Saad**, Wesley KG Assunção, Atif Mashkooor, Christoph Mayr-Dorn, and Alexander Egyed. "Towards Recommending Refactoring Operations Based on Bugs." Available at SSRN 4397230.
- **Saad Shafiq**, Atif Mashkooor, Christoph Mayr-Dorn, Alexander Egyed, "A Literature Review of Using Machine Learning in Software Development Life Cycle Stages." *IEEE Access*, 2021.
- **Saad Shafiq**, Atif Mashkooor, Christoph Mayr-Dorn, Alexander Egyed, "NLP4IP: Natural Language Processing-based Recommendation Approach for Issues Prioritization." In the proceedings of *2021 47th Euromicro Conference on Software Engineering and Advanced Applications (SEAA)*, 2021.
- **Saad Shafiq**, Atif Mashkooor, Christoph Mayr-Dorn, Alexander Egyed, "TaskAllocator: A Recommendation Approach for Role-based Tasks Allocation in Agile Software Development." In the proceedings of *2021 IEEE/ACM Joint 15th International Conference on Software and System Processes (ICSSP) and 16th ACM/IEEE International Conference on Global Software Engineering (ICGSE)*, 2021.
[Distinguished Paper Award Nominee]
- **Saad Shafiq**, Christoph Mayr-Dorn, Atif Mashkooor, Alexander Egyed, "Towards Optimal Assembly Line Order Sequencing with Reinforcement Learning: A Case Study." In the proceedings of *2020 25th IEEE International Conference on Emerging Technologies and Factory Automation (ETFA)*, 2020.
- **Saad Shafiq**, Atif Mashkooor, Christoph Mayr-Dorn, Alexander Egyed, "Machine Learning for Software Engineering: A Systematic Mapping." *arXiv preprint arXiv:2005.13299*, 2020.
- **Saad Shafiq**, Irum Inayat, Muhammad Abbas, "Communication Patterns of Kanban Teams and their Impact on Iteration Performance and Quality." In the proceedings of *2019 45th Euromicro Conference on Software Engineering and Advanced Applications (SEAA)*, 2019.
- Shafiq Rehman, Volker Gruhn, **Saad Shafiq**, Irum Inayat, "A systematic mapping study on security requirements engineering frameworks for cyber-physical systems." In the proceedings of *International Conference on Security, Privacy and Anonymity in Computation, Communication and Storage*, 2018.

- **Saad Shafiq**, Irum Inayat, "Towards Studying the Communication Patterns of Kanban Teams: A Research Design." In the proceedings of 2017 IEEE 25th International Requirements Engineering Conference Workshops (REW), 2017.

Saad Shafiq, Irum Inayat, "Model-driven Development based Cross Platform Application Development: A Systematic Mapping Study." Journal of Information Science and Engineering, 2017.