

# Amir Mashmool

SOFTWARE ENGINEERING RESEARCHER

Department of Mathematics and Computer Science, University of Bremen, Bremen, Germany

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## Research Interests

**Software Engineering** : Program comprehension, Software Visualization, Developer Behaviour, Eye tracking, Empirical Software Engineering, human aspect of software engineering, SE4AI, AI4SE

**Artificial Intelligence**: Machine learning, Deep Learning

## Research Profile Links

[Google Scholar](#) | [Ad Scientific Index](#) | [ResearchGate](#) | [DBLP](#) | [Scopus](#) | [IEEE Xplore](#) | [ORCID](#) | [OpenReview](#) | [Conf.researchr.org](#) | [Publons](#) | [Academia](#) | [SciProfiles](#) | [Semantic Scholar](#) | [Frontiers](#) | [MyScienceWork](#) | [LinkedIn](#) | [GitHub](#) | [Twitter](#)

## Current Appointments

- ◇ **Research Assistant - Software Engineering Research Group** - University of Bremen December 2024–now
- ◇ **Associate Fellow - DFG funded research training group - CAUSE** December 2024–now
- ◇ **Teaching Assistant** - University of Bremen December 2024–now
- ◇ **Doctoral Student** - University of Bremen December 2024–now

## Education

### PhD in Computer Science

UNIVERSITY OF BREMEN

- Supervisor: Prof. Rainer Koschke

*Bremen, Germany*

*Dec 2024 - now*

### Master of Science in Computer Science (Data Science and Engineering)

UNIVERSITY OF GENOVA

- GPA: 106/110
- Thesis Grade: 10/10
- Thesis title: [Edge Computing in Healthcare Using Machine Learning: A Systematic Literature Review](#)
- Thesis Supervisors: Prof. Daniele D'Agostino ; Prof. Giorgio Delzanno
- Notable Scores: Data Warehousing(28/30), Internet Of Things(30/30), Topics In Computer Science(29/30), Multiagent Systems(27/30), Computer Games(28/30), Data Protection and Privacy (Trenta e Lode) Trenta e Lode= 30 with Honors.

*Genova, Italy*

*Sep 2021 - July 2024*

### Bachelor's Degree in Computer Engineering (Software Engineering)

UNIVERSITY OF BIRJAND

- Overall GPA: 15.23/20, GPA of last two semesters: 17.24/20
- Thesis Grade: 20/20
- Thesis title: A Statistical Model to Assess the Team's Productivity in Agile Software Teams. Thesis Supervisor: [Samiyeh Khosravi](#)
- Notable Scores: Computer Digital System Design(17/20), Entrepreneurship(18.70/20), Research Methods and Presentation(20/20), Computer Networks(17/20), Operating Systems Lab(17.50/20), Physics 2(19.50/20), Fundamentals of Information Technology(20/20), Electrical Circuits I(19/20),Software Project(20/20), Data Communications(18/20), MATLAB Programming workshop(19/20),Design of Programming Languages(17.50/20), Internship(18/20), RealTime Embedded Systems(18/20), Foundations of Wireless Networks(18/20)

*Birjand, Iran*

*Sep. 2016 - July 2021*

### Diploma in Physics and Mathematics Discipline

IMAM HUSSEIN HIGH SCHOOL

- GPA: 17.11/20

*Torbat Heydarieh, Iran*

*2012 - 2016*

## Honors and Awards

2021 **Talented student (based on research)**, Recognized by the University of Birjand, [Certificate](#)

*Birjand, Iran*

2025 **IOP Trusted Reviewer**, Recognized by IOP Publishing, [Certificate](#)

## Teaching Assistant Experience

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### POSITION: TEACHING ASSISTANT

#### AI Algorithms: Theory and Engineering

*Bremen, Germany*

*Winter Semester 2024/2025; Winter*

UNIVERSITY OF BREMEN

*Semester 2025/2026*

- Lecturer: [Professor Nico Hochgeschwender](#)
- Course Level: Master's Program
- Course Overview: The course focuses on the theoretical foundations and engineering applications of AI algorithms. Topics include machine learning, software engineering, recommendation systems, and AI in real-world applications.
- My Role: I support the course through lab sessions, create and grade assignments, give feedback, and support students with their coursework and projects.

#### Software Engineering for Cognitive Robots

*Bremen, Germany*

UNIVERSITY OF BREMEN

*Summer semester 2025*

- Lecturer: [Professor Nico Hochgeschwender](#)
- Course Level: Master's Program
- Course Overview: This course provides an in-depth exploration of software engineering for cognitive robots, focusing on key challenges such as safety, robustness, and adaptability. Students will gain the ability to apply relevant standards, decompose cognitive functions, and develop robust control architectures, while learning to evaluate and test cognitive robots effectively.
- My Role: I support the course through lab sessions, create and grade assignments, give feedback, and support students with their coursework and projects.

#### Software Project

*Bremen, Germany*

UNIVERSITY OF BREMEN

*Winter Semester 2025/2026*

- Lecturer: [Dr. Karsten Hölischer](#)
- Course Level: Bachelor's degree programs
- Course Overview: The world around us is becoming more "digital" every day. Software and software engineering play a crucial role in this. In this course, we decided to explore the "engineering" process of creating a large software system, from requirements gathering and design to testing and, of course, implementation.
- My Role: The students were required to complete a software project. My responsibility was to supervise two teams, each consisting of six members. The teams were expected to deliver the prototype, data model, implementation, and other project components. I held weekly meetings with the teams to monitor their progress and provide guidance.

### POSITION: CO-LECTURER

#### Seminar: Inside the Software Developer's Mind: How We Understand, Navigate, and Visualize Code

*Bremen, Germany*

UNIVERSITY OF BREMEN

*Summer Semester 2026*

- Lecturers: Co-Lecturer with [Professor Rainer Koschke](#)
- Course Level: Master's Program
- Seminar Overview: This seminar focuses on how developers understand, navigate, and work with code, combining ideas from program comprehension and software visualization. We will examine how developers explore unfamiliar codebases, locate bugs, and understand system structures using both traditional techniques and modern tools such as large language models. In addition, the seminar covers software visualization approaches that help developers better understand complex structures and relationships within code. Participants will read and analyze recent research papers related to these topics. Each student will present their findings and actively participate in discussions. Due to the interactive format and limited number of participants, the seminar aims to provide an engaging and discussion-driven environment.

## Research Assistant Experience

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### Research Assistant

*Birjand, Iran*

DEPARTMENT OF COMPUTER ENGINEERING, UNIVERSITY OF BIRJAND.

*2018 - 2021*

- Directors: [Samiyeh Khosravi](#); [Dr Mohammad Ghasemi-Gol](#)

## Publication

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My research is concentrated in two areas: The first one is [Software Engineering](#). The second one is [Artificial Intelligence and its applications](#).

## PAPERS RELATED TO SOFTWARE ENGINEERING

1. Ali Rezaei Nasab, Mojtaba Shahin, Seyed Ali Hoseyni Raviz, Peng Liang, **Amir Mashmool** and Valentina Lenarduzzi. "An Empirical Study of Security Practices for Microservices Systems." *Journal of Systems and Software* (2022) 111563. DOI:10.1016/j.jss.2022.111563  
Journal Information: Name: *Journal of Systems and Software*, ISSN: 0164-1212, Impact Factor: 3.514, Journal Ranking: Q1
2. Javdani Gandomani, T.; **Mashmool, A.**; Dashti, M.; Khosravi, S.; Najafi Sarpiri, M.; Radnejad, M.; Afshari, M.; Mansouri, S.; "Talent management in agile software development: The state of the art", Published in: 2021 3rd East Indonesia Conference on Computer and Information Technology (EIConCIT), DOI:10.1109/EIConCIT50028.2021.9431902
3. **Mashmool, A.**; Khosravi, S.; Joloudari, J.H.; Inayat, I.; Javdani Gandomani, T.; Mosavi, A.; "A Statistical Model to Assess the Team's Productivity in Agile Software Teams". Published in IEEE conference CANDO2021. DOI: 10.1109/CANDO-EPE54223.2021.9667902

## PAPERS RELATED TO AI AND APPLICATION OF AI

1. **Mashmool, Amir**, Giorgio Delzanno, Hamid Saadatfar, Aakash Ahmad, Rainer Koschke, Roohallah Alizadehsani, U. Rajendra Acharya, and Daniele D'Agostino. "Edge Computing in Healthcare Using Machine Learning: A Systematic Literature Review." *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery* 16, no. 1 (2026): e70069. DOI: 10.1002/widm.70069  
Journal Information: Impact Factor: 11.7, Journal Ranking: Q1
2. J. Hassannataj Joloudari, M. Haderbadi, **A. Mashmool**, M. Ghasemigol, S. S. Band and A. Mosavi, "Early Detection of the Advanced Persistent Threat Attack Using Performance Analysis of Deep Learning". Published in *IEEE Access*, vol. 8, pp. 186125-186137, 2020, DOI:10.1109/ACCESS.2020.3029202. Journal Information: Name: *IEEE Access*, ISSN: 21693536, Impact Factor: 3.514, Journal Ranking: Q1
3. Habibi, Hossein, Abbas Rasoolzadegan, **Amir Mashmool**, Shahab S. Band, Anthony Theodore Chronopoulos, and Amir Mosavi. "SaaSRec+: a new context-aware recommendation method for SaaS services." *Mathematical Biosciences and Engineering* 19, no. 2 (2022): 1471-1495. DOI: 10.3934/mbe.2022068  
Journal Information: Name: *Mathematical Biosciences and Engineering*, ISSN: 15471063, Impact Factor: 2.1, Journal Ranking: Q2
4. Javad Hassannataj Joloudari, Sanaz Mojriani, Issa Nodehi, **Amir Mashmool**, Zeynab Kiani Zadegan, Sahar Khanjani Shirkharkolaie, Roohallah Alizadehsani, Tahereh Tamadon, Samiyeh Khosravi, Mitra Akbari Kohnehshari, Edris Hassannatajjeloudari, Danial Sharifrazi, Amir Mosavi, Hui Wen Loh, Ru-San Tan and U Rajendra Acharya. "Application of artificial intelligence techniques for automated detection of myocardial infarction: a review" Published in *Physiological Measurement journal*. DOI: 10.1088/1361-6579/ac7fd9  
Journal Information: Name: *Physiological Measurement*, ISSN: 09673334, Impact Factor: 2.6, Journal Ranking: Q2

## PREPRINT

1. Qamar, Nosheen, Nosheen Sabahat, **Amir Mashmool**, and Amir Mosavi. "Evaluating the Impact of Pair Documentation on Requirements Quality and Team Productivity." *arXiv preprint arXiv:2304.14255* (2023). DOI:10.48550/arXiv.2304.14255
2. Shafiezadeh, B., **Mashmool, A.**, Eshghi, F. and Kelarestaghi, M., 2025. A New Hybrid Model of Generative Adversarial Network and You Only Look Once Algorithm for Automatic License-Plate Recognition. *arXiv preprint arXiv:2509.06868*.

## Funding / Grants

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### Minds, Media, Machines (MMM), University of Bremen

Bremen, Germany

MMM IMPULSE SEED GRANT (€5,000)

May 2026 – Dec 2026

- Grant Type: Funding for early-career researchers.
- Project: *Analysis of Developers' Cognitive Activity during Program Comprehension Tasks*.
- Collaboration with [AG Softwaretechnik](#) and [Cognitive Systems Lab \(CSL\)](#).
- Purpose: Funding support for two student assistant (Minijob) position.

## Service

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All peer-review activities listed in this section have been verified by the Web of Science database. The complete list of these reviews is available through my ORCID profile under the Peer Review section.

### JOURNAL REVIEWER :

Reviewer for the [IEEE Access Journal](#), Certificate

Reviewer for the [SoftwareX Journal](#), Certificate

Reviewer for the [Software Impacts Journal](#), Certificate

Reviewer for the [Biomedical Physics & Engineering Express Journal](#),

Reviewer for the [Engineering Research Express Journal](#),

Reviewer for the [Frontiers in Computer Science \(Software\)](#),

Reviewer for the [Technology and Health Care Journal](#),

Reviewer for the [Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery](#), Certificate

### CONFERENCE PC (PROGRAM COMMITTEE) MEMBER:

PC Member for the [IEEE International Conference on Software Maintenance and Evolution \(ICSME 2026\)](#),

## Student Supervision

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[Niklas Bockelmann](#), M.Sc. Student, University of Bremen

2026

[Muhammad Uzair Baqir](#), M.Sc. Student, , University of Bremen

2026

## Academic Projects

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### Bachelor Course Project

**Design and Implementation** of a Game (Passing a Pedestrian from the Street), using C++, Fundamentals of Programming Course, Supervisor: [Dr. H. Saadatfar](#)

**Design and Implementation** of a Dictionary and finding misspelling words Using C++,Advance programming course, supervisor:[Mr.Mohammad Sadegh navabi](#)

**Design and Implementation** of a project about some mathematic data Engineering, Statistics & Probability course, using SPSS, supervisor: [D.r Mahdi forouzanfar](#)

**Design and doing a lot of tasks** with max plus and ISE software Also Having a presentation about using FPGA in smart Home(BMS), Digital System Design course, supervisor: [Dr Mehran Taghipour-Gorjikolaie](#)

### Master Course Project

**Design and Implementation** of a smart garden,to accomplish the project, we used Wokiw for simulation, MQTT as a broker, Vue.js for historical data visualization, Node.js as a Js client application, and Ubidots as a user dashboard.[Internet Of Things](#) course, Supervisors: [Professor Giorgio Delzanno](#), [Professor Davide Ancona](#). available at [Github](#)

**Design and Implementation** of a website using d3.js. This project is for visualizing different aspects of the Trento tree dataset. The website aims to provide readable and appealing visualizations for the reader. [Data visualization](#) course, Supervisors: [Professor Annalisa Barla](#). available at [Github](#)

**Implementation** of Naive Bayes algorithm. [Machine Learning](#) course. Supervisors: [Professor Nicoletta Noceti](#), [Professor Lorenzo Rosasco](#). available at [Github](#)

**Implementation** of MASK algorithm (Mining Associations with Secrecy Konstraints).[data protection and privacy](#) course. Supervisors: [Professor Alessio Merlo](#), [Francesco Pagano](#). available at [Github](#)

## Technical Experience

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### Part Software Group

Mashhad, Iran

SOFTWARE DEVELOPMENT INTERNSHIP

2019

- Working on projects using the following technologies: HTML/HTML5, CSS/CSS3, SASS, Node.js.

## Professional Skills

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<b>Programming Tools and Languages</b>	C/C++, Python, Visual Studio Code
<b>Web/DB Technologies</b>	HTML, CSS, JavaScript
<b>Operating System</b>	Linux (Ubuntu), Windows
<b>Typesetting</b>	TEX, LATEX, Microsoft Word
<b>Reference Management Tools</b>	EndNote
<b>Technologies</b>	Network+, Max plus
<b>Other</b>	Excellent communication skills, encouraging teammate, keen interest in research

## Activities, Memberships, Certificates

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- ◇ Participant - [The Summer School on Empirical Research Methods in Software Engineering and Informatics \(ERMSEI\)](#) , Rennes, France. [Certificate](#) September 2025
- ◇ ACM Staff in 7th ACM programming Contest, University of Birjand May 2018
- ◇ Member of Computer Scientific Association, University of Birjand 2016-2018
- ◇ Member of the International Association of Engineers (IAENG)
- ◇ Professional Scrum Foundation, Iran Scrum Institute, [Credential URL](#)
- ◇ Certificate of Participation - IEEE Conference [Certificate](#)
- ◇ Certificate Of Paper Presentation - IEEE Conference [Certificate](#)

## Language Proficiency

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Persian (Native), English (Fluent), Arabic (Familiar)

English, Fluent in Reading, Fairly Good in Speaking, Comprehension and Writing.

## Hobbies

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**Sports:** Football, Biking, Wrestling | **Other:** Farming

## References

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Prof. Rainer Koschke (Full Professor)

Department of Computer Science, University of Bremen, Germany; [koschke@uni-bremen.de](mailto:koschke@uni-bremen.de)

Prof. Mohammad GhasemiGol (Associate Professor)

Department of Computer Science, School of Cybersecurity, Old Dominion University (ODU), USA; [mghasemi@odu.edu](mailto:mghasemi@odu.edu)

Prof. Giorgio Delzanno (Full Professor)

DIBRIS, University of Genova, Italy; [giorgio.delzanno@unige.it](mailto:giorgio.delzanno@unige.it)

Prof. Daniele D'Agostino (Associate Professor)

DIBRIS, University of Genova, Italy; [daniele.dagostino@unige.it](mailto:daniele.dagostino@unige.it)

Prof. Taghi Javdani Gandomani (SMIEEE, Associate Professor)

University of Shahrekord, Iran; [javdani@sku.ac.ir](mailto:javdani@sku.ac.ir)

Mr. Javad Hassannataj Joloudari (Senior Researcher of AI)

Department of Electrical Engineering, University of Birjand, Iran;  
[javad.hassannataj@birjand.ac.ir](mailto:javad.hassannataj@birjand.ac.ir), [javad.hasannataj@gmail.com](mailto:javad.hasannataj@gmail.com)