



Muhammad Asif

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Multan, 59131, Multan, Pakistan

📍 **Work** : CIRSFID, Via Galliera, 3, 40121 Bologna BO, 40121, Bologna, Italy

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🌐 **LinkedIn**: www.linkedin.com/in/Muhammad-Asif-Hashmat-Ali

🔍 **Google Scholar**: https://scholar.google.com/citations?user=xb3_zsQAAAAJ&hl=en

🔍 **Publons**: <https://publons.com/wos-op/researcher/ADJ-2283-2022/>

Gender: Male **Date of birth**: 10 Oct 1995 **Nationality**: Pakistani

ABOUT ME

I am a self-directed team player with strong statistical analysis and research skills, backed by a solid background in computer science. I am keenly interested in artificial intelligence, machine learning, natural language processing, data analysis, and data science. I possess the ability to communicate complex technical ideas effectively and solve problems using my analytical and strong communication skills. I am confident that I can contribute significantly to an organization and deliver the maximum value through my skills.

WORK EXPERIENCE

University of Bologna

City: Bologna | **Country**: Italy

[1 Jan 2025] **Post-Doctoral Researcher**

Topic: Neuro-symbolic AI for simplifying legislation using Knowledge Graph and LegalXML

University of Bologna

City: Bologna | **Country**: Italy

[1 Jan 2022 – 31 Dec 2024] **Doctoral Researcher**

Topic: Legimatics and AI tools for the Monitoring of EU Legislation with Agrifood and SDGs

University of Luxembourg

City: Luxembourg | **Country**: Luxembourg

[1 Jan 2022 – 31 Dec 2024] **Doctoral Researcher**

Topic: Legimatics and AI tools for the Monitoring of EU Legislation with Agrifood and SDGs

BitNomos

City: Bologna | **Country**: Italy

[1 Oct 2022 – 31 Mar 2023] **Software Engineer**

Lahore Institute of Science of Technology

City: Lahore | **Country**: Pakistan

[1 Oct 2021 – 28 Feb 2022] **Lecturer of Computer Science**

Riphah International

City: LAHORE | **Country:** Pakistan

[1 Oct 2020 – 30 Sep 2021] **Lecturer of Computer Science**

EDUCATION AND TRAINING

[1 Jan 2022 – 31 Dec 2024] **Doctor of Philosophy in Computer Science**

University of Luxembourg | <https://www.uni.lu/en/>

Address: 2 Av. de l'Universite, Esch-sur-Alzette, 4365, Luxembourg City, Luxembourg |

[1 Jan 2022 – 31 Dec 2024] **Doctor of Philosophy in Law, Science and Technology**

University of Bologna | <https://www.unibo.it/en/homepage>

Address: CIRSFD, 40121, Bologna, Italy |

[14 Oct 2017 – 30 Jan 2020] **MS/MPhil-COMPUTER SCIENCE**

Bahria University Lahore Campus

Address: 47-C Civic Center Johar Town, Lahore, 54600, Lahore, Pakistan | **Field(s) of study:** Computer Science | **Final grade:** 3.00/4.00 | **Thesis:** Aspect level Sentiment Analysis of Roman Urdu Reviews

Associate Data Scientist in Python

DataCamp | <https://www.datacamp.com/statement-of-accomplishment/track/aa996b3b7322b88d093da0e996c12323818ed422>

Country: Pakistan |

Data Analyst with Python

DataCamp | <https://www.datacamp.com/statement-of-accomplishment/track/4f3d48753987420995ea112aba6c1b49180224c5>

Country: Pakistan |

[1 Feb 2024 – 1 Feb 2024] **Research Integrity: Core**

epigeum | <https://www.epigeum.com/>

City: Luxembourg | **Country:** Luxembourg |

Research Integrity: Core course with **250 minutes** the following below courses:

- Good research conduct
- Irresponsible research practices
- Planning your research
- Managing and recording your research
- Data selection, analysis and presentation
- Scholarly publication
- Professional responsibilities
- Communication, social responsibility and impact

SKILLS

Core Competencies

Artificial Intelligence | Machine Learning | AI & Law | Data Mining | Natural Language Processing | Deep Learning | Large Language Models | Transfer Learning | Information Retrieval | Symbolic and Sub-symbolic AI | Generative AI | Explainable AI | AI & Law / LegalTech

NLP

GPT architectures | BERT | RoBERTa | NLTK | Hugging Face Transformers | OpenAI API | Scikit-learn | spaCy | Pandas | PyTorch | Keras | XGBoost | TextBlob | Relation Extraction | Text Classification | NER | Fine-tuning | Prompt Engineering | Pattern | TensorFlow | MLflow | SentiWordNet | Matplotlib | ElementTree | BeautifulSoup

Data Scientist/Analyst

Data Scientist | Data Analysis | Data analytics and Data visualization | Text Analysis and Visualization | Data Cleaning and Preprocessing | Feature Engineering | Sampling techniques | Model interpretability | Model evaluation | Cross-validation | Statistical Analysis

Tools

Jupyter | Python | SPSS Statistical software | Microsoft Visio | KNIME | WEKA | RapidMiner | SQL (Basic) | QlikSense

PROJECTS

[1 Jan 2025 – Current]

Neuro-symbolic AI for simplifying legislation using Knowledge Graph and LegalXML

Developed a neuro-symbolic AI framework integrating large language models (e.g., LLaMA), Knowledge Graphs, and LegalXML to simplify legislation and enhance explainability. Automated tasks such as legislative monitoring, anomaly detection, and policy evaluation while ensuring compliance with AI Act and GDPR. Focused on creating explainable AI solutions for legal decision-making.

[1 Jan 2022 – 31 Dec 2024]

Legimatics and AI tools for the monitoring of EU legislation in agrifood and Sustainable Development Goals

By integrating annotation, classification, and linking of EU legislation with SDGs, this research provides a robust mechanism for policymakers and researchers to monitor legislative alignment with Sustainable Development Goals objectives, enabling informed decision-making and effective policy formulation.

[1 Feb 2020 – 31 Dec 2021]

Rate the Songs on the basis of their Sentiment Analysis

This project rate the songs on the basis of their Sentiment Analysis using Natural Language Processing and Machine Learning techniques.

[1 Apr 2020 – 31 Aug 2021]

Auto-Annotation Techniques for Sentiment Analysis

Developed a fully automated annotation technique for aspect-level sentiment analysis using an N-Gram-based approach. Created a dataset of 369,436 YouTube reviews and annotated it in just 173.53 seconds. Validated high-quality results with 95.71% agreement to manual annotations.

[31 Oct 2018 – 30 Nov 2018]

Aspect Level Sentiment Analysis of Roman Urdu Reviews

Masters dissertation on the Sentiment Analysis of Roman Urdu Reviews using Supervised Machine Learning and Data Mining, Information Retrieval, Natural Language Processing Techniques.

[30 Sep 2016 – 31 May 2017]

Boutique Management System

An application for the Boutique Management System using C# and My SQL.

HONOURS AND AWARDS

- [1 Jan 2022] **PON Scholarships Winner** Awarding institution: University of Bologna, Italy
- [30 Sep 2018] **PEEF Scholarship Award** Awarding institution: Punjab Educational Endowment Fund, Punjab, Pakistan

CONFERENCES AND SEMINARS

- [26 Aug 2024 – 28 Aug 2024] **International Conference on Electronic Government and the Information Systems Perspective (EGOVIS 2024)**
Naples, Italy
- [7 Jul 2023 – 11 Jul 2023] **4th International Summer School on Knowledge-Driven Innovation & Entrepreneurship**
Bollendorf, Germany
- [3 Jul 2022 – 9 Jul 2022] **ISWS - International Semantic Web Summer School 2022** Bertinoro, Italy
Our team, Hufflepuff, achieved second place in the research paper competition.
- [7 Jul 2022 – 15 Jul 2022] **AI and Law Summer School** European University Institute Florence, Italy
- [20 Jun 2022 – 22 Jun 2022] **Una Europa online training: Entrepreneurial PhD Academy** University of Bologna, Bologna Italy
- [31 Oct 2019 – 1 Nov 2019] **International Conference on Innovative Computing** Lahore, Pakistan

CERTIFICATIONS

- IEEE Reviewer Certificates**
IEEE
- [2025] **ACM's Peer Reviewer Training Course**
This training aims to foster high-quality, unbiased, and ethical peer review, ensuring that reviewers play a critical role in shaping the future of academic publishing.
- [2024] **Journal Selection and the Dangers of Poor Editorial Quality**
LetPub Learning Nexus
- [2024] **Reviewer for the Hindawi portfolio of journals**
IEEE
- [2023] **IEEE Authorship and Open Access Symposium**

VOLUNTEERING

- INTECOL 2022 Congress** Geneva, Switzerland
Local Organizing Committee

PUBLICATIONS

- [2025] **Mapping EU Legislative Definitions on Sustainable Development Goals using AI**
Authors: Muhammad Asif* and Monica Palmirani | **Journal Name:** Accepted in EGOVIS 2025 Conference
- [2024] [**Legal Definition Annotation in EU Legislation Using Symbolic AI**](#)
Reference: Asif, M., Palmirani, M. (2024)

- [2023] [Aspect Level Songs Rating Based Upon Reviews in English](#)
- [2023] [NewBee: Context-Free Grammar \(CFG\) of a New Programming Language for Novice Programmers](#)
- [2022] [A Novel Auto-Annotation Technique for Aspect Level Sentiment Analysis](#)
- [2022] [Sentiment Analysis of Reviews in Natural Language: Roman Urdu as a Case Study](#)
- [2022] [Roman Urdu Sentiment Analysis of Reviews on PSL Anthems](#)
- [2022] [Context-Free Grammar of a New Programming Language for Teaching and Learning](#)
- [2019] [A Dataset for the Sentiment Analysis of Indo-Pak Music Industry](#)

CONTRIBUTIONS TO RE- SEARCH COMMUNITY

Short Bio

Muhammad Asif is a Postdoctoral Researcher at the University of Bologna, where he focuses on neuro-symbolic artificial intelligence to simplify legal texts using Knowledge Graphs and LegalXML. Muhammad Asif holds a Doctorate of Philosophy in Law, Science and Technology from the Department of Legal Studies, University of Bologna, Italy [PDF](#), and a Doctorate of Philosophy in Computer Science from the Department of Computer Science and Computer Engineering, University of Luxembourg [PDF](#).. His interdisciplinary background connects legal studies with advanced computing, especially in the areas where AI, law, and technology intersect. He also holds an M.S./M.Phil. in Computer Science from Bahria University, Lahore Campus, Pakistan.

Asif actively contributes to the academic community by serving as a voluntary reviewer for various respected journals and conferences, including ACM portfolio journals, IEEE Transactions on Affective Computing, International Journal of Intelligent Systems, IEEE Access, Computers, Materials & Continua, Computational Intelligence and Neuroscience, Frontiers in Public Health, and Intelligent Automation and Soft Computing, among others.

His research interests include Artificial Intelligence, Machine Learning, Natural Language Processing, Large Language Models, Data Science, AI & Law, and broader topics in Computer Science.

LANGUAGE SKILLS

Mother tongue(s): Urdu , Panjabi; Punjabi

Other language(s):

English

LISTENING C1 READING C1 WRITING C1

SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1

Italian

LISTENING A1 READING A2 WRITING A1

SPOKEN PRODUCTION A1 SPOKEN INTERACTION A1

Hindi

LISTENING C1 READING A1 WRITING A1

SPOKEN PRODUCTION C2 SPOKEN INTERACTION C2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

RECOMMENDATIONS

Name: Prof. Monica Palmirani Full Professor at the University of Bologna, Italy,
Coordinator of PhD in Law, Science & Technology

Phone number: (+39) 051277217 | **Email:** monica.palmirani@unibo.it

Link: <https://www.unibo.it/sitoweb/monica.palmirani/en>

Name: Prof. Dr. Leon van der Torre Professor of Computer Science at the University of
Luxembourg

<https://icr.uni.lu/leonvandertorre/index.html>

Phone number: (+352) 4666445261 | **Email:** leon.vandertorre@uni.lu

Name: Dr. Muhammad Aasim Qureshi Associate Professor at FAST National University
Lahore, Pakistan

<https://lhr.nu.edu.pk/fsc/facultyProfile/6968>

Phone number: (+92) 3215171817 | **Email:** aasim.qureshi@nu.edu.pk

Link: <https://www.linkedin.com/in/dr-muhammad-aasim-qureshi-05725732/?originalSubdomain=pk>