

DR. MUHAMMAD ARIF SHAH



- Fachhochschule Certified Academician Austria)
- Lead Gaming and Animation Studio (XUP Studios)
- CEO, Potatoman group of Companies
- Member of the academic Council, PAFIAST
- Member of the Economic Think Tank of Pakistan for SDPI
- Startup and Applied Research Policy Maker at Technology Park, PAFIAST

PhD(with Distinction)

Specialization in, Software Engineering and Data Science,
Department of Software Engineering, School of Computing, Faculty of
Engineering *Universiti Teknologi Malaysia (UTM)*
“**Ranked in Top 200 Universities of the World**”

PERSONAL INFORMATION

Present Address : Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology,
Mang, Khanpur Road, Haripur-KPK, Pakistan
Cell No :
E-mail : arif.websol@gmail.com
Date of Birth : 5th October 1986
Gender : Male
NIC# :

OBJECTIVE

As a dedicated software engineer and academician, I am passionate about bridging the gap between cutting-edge research and practical applications through seamless knowledge transfer and collaborative partnerships between academia and industry. Leveraging data-driven insights and innovative methodologies, I aim to drive transformative solutions that address real-world challenges and foster meaningful progress across sectors. I seek to contribute to the growth of both academia and industry, nurturing a symbiotic relationship that leads to significant advancements and societal impact.

Introduced and Experimented New Teaching Methodologies

- 1) Mirroring Industrial Environment in **Software Engineering** Subjects for acquiring Hands on Skills
- 2) Skill based Teaching and Evaluation Method for **Design Thinking** and **Human Computer Interaction**
- 3) **Programming for All**: Sinusoiding the Complexity Levels
- 4) Preparing Industry-Ready Data Scientists

EXPERIENCE

- **Total Experience: 13+ Years.**
- **Assistant Professor at Pak-Austria, Pak-Austria Fachhochschule Institute of Applied Sciences and Technology, Mang Khanpur Road Haripur, Pakistan** (Feb 3, 2020 to Present)
- **Project Manager** for collaborative projects with Guangdong University of Technology, China
- Sr. Lecturer/Postdoc (Teaching & Learning) at **Universiti Teknologi Malaysia** (from 19th Sept. 2019 to 31 January 2020)
- **Assistant Professor at City University of Science and Information Technology Peshawar, Pakistan** (Feb. 2015 to 30 September 2019)
- Lecturer and Head of Computer Science and Software Engineering programs at **Iqra National University, Peshawar (July 2012 to Feb. 2015)**-
- Lecturer at Edwards College School and Elizabeth Girls College Peshawar, (2009 to 2012)
- At the same time (Sr. Software Engineer at **WebSol** software company (25 Feb. 2010 to July 2012)

AWARDS

- Received **Best Teacher Award** at City University of Science and IT, Peshawar, Pakistan
- Received **Best Student Award** at UTM Malaysia
- Received **AirAsia (International Airline)** award for Data Sciences in Malaysia
- Received Merit Thesis Award at UTM Malaysia
- Received **Academic Award** at UTM Malaysia
- Received Research Excellence Award at UTM Malaysia
- Nominated for Chancellor (Queen's) Award at UTM Malaysia

EDUCATIONAL HISTORY

Fachhochschule Certified Academician (Austria)

PostDoc (Teaching & Learning)

Department of Software Engineering, School of Computing, Faculty of Engineering
Universiti Teknologi Malaysia (UTM)

PhD

Specialization in **Software Engineering and Data Science**

Department of Software Engineering, School of Computing, Faculty of Engineering
Universiti Teknologi Malaysia (UTM)

MS

Software Engineering

KPK University of Engineering & Technology, Peshawar (UET, Peshawar), Pakistan.

Graduation

BS(CS)

KPK University of Engineering & Technology Peshawar (UET, Peshawar), Pakistan.

Administrative Services

- Developed Strategies for curriculum development with Google Representatives from Silicon Valley and other renown professors
- Established Game Development and Animation Studio at PAFIAST got it sponsored by MindStorms studios (2023)
- Established Teaching and Research labs at PAFIAST (Mostly got funded by Industry) - 2023
- Planned, developed, and got approval of the curriculums, scheme of studies and other relevant formalities such as Labs, books etc. from all statutory bodies.
- Started the following degree programs at PAFIAST

- BS (Software Engineering)
- BS (Data Science)
- BS (Artificial Intelligence)
- BS (Computer Science)
- MS (Data Science)
- MS (Software Engineering)
- MS (Cyber Security)
- Conducted Six Board of Studies at PAFIAST
- Focal Person between of PAFIAST for Sustainable Development Policy Institute
- Focal Person of PAFIAST for Federal Board of Revenue
- Developed Research Policy of PAFIAST
- Developed Startup Policy of PAFIAST
- Liaison between
 - PAFIAST and Bitmedia (Austria)
 - PAFIAST and SZIIT (China)
 - PAFIAST and SPCAI
 - PAFIAST and Mindstorm Studios
 - PAFIAST and SDPI
 - PAFIAST and Dice Analytics
- Head of the students' societies and chapters (Conducted major events all sponsored by Industries)
 - FYES (Fochhochshule Youth Entrepreneurial Society)
 - TechSoc (Tech Society)
 - Game Development and E-Sports societies
- Headed PAFIAST Project Exhibition at PAFIAST
- Head of Program BS (Software Engineering) at Iqra National University, Peshawar (July 2012 to Feb. 2015)
- Head of Program BS (Computer Science) at Iqra National University, Peshawar (July 2012 to Feb. 2015)

PROFESSIONAL SERVICES

- **Member of the National Economic Think Tank**
- Editor for Scientific Programming Journal
- Chief Editor for Software and Computational Intelligence Journal
- Reviewer for More than 20 ISI journals and renowned conferences

Skills

Software Engineering: Proficient in the principles and practices of software engineering, with expertise in designing, developing, and maintaining software applications and systems.

Artificial Intelligence (AI) and Machine Learning (ML): Skilled in AI and ML concepts, algorithms, and applications, capable of developing intelligent systems and leveraging data for predictive analysis.

Teaching and Instruction: Demonstrated ability to effectively teach and instruct both graduate and undergraduate students, fostering a conducive learning environment.

Research: A strong research background with a proven record of academic publications and contributions to the field of Software Engineering, Cybersecurity, AI, or ML.

Leadership: Possessing leadership qualities, able to motivate and inspire students and colleagues, and contribute to the growth and success of the Department of Software Engineering.

Core Course Instruction: Proficient in teaching core courses in Software Engineering and Computer Science, including object-oriented programming, algorithms, data structures, and discrete math.

Curriculum Development: Capable of designing and developing curriculum content for software engineering programs, aligning with the latest industry trends and best practices.

Lab Development: Familiarity with lab development and implementation, creating hands-on learning experiences for students in Software Engineering and Computer Science.

Communication Skills: Excellent communication and interpersonal skills to interact effectively with students, colleagues, and industry partners.

Educational Technologies: Familiarity with integrating educational technologies into teaching methods, enhancing the learning experience for students.

Adaptability: Able to adapt to a dynamic and diverse academic environment, working with students and faculty from around the world.

Problem Solving: Strong analytical and problem-solving skills, capable of addressing complex challenges in software development and research.

Collaboration: Proven ability to work collaboratively with colleagues and industry professionals on research projects and academic initiatives.

Academic Administration: Knowledge of academic administrative processes, including supervising and mentoring graduate students.

Data Analytics: Familiarity with data analytics techniques, enabling the interpretation and utilization of large datasets for research and applications.

Project Management: Skilled in managing research projects and academic endeavors, adhering to timelines and delivering quality results.

Multicultural Awareness: Sensitivity and understanding of cultural diversity, supporting an inclusive and welcoming academic environments for all students and staff.

RESEARCH ARTICLES

- i. Shah, Muhammad Arif, et al. "Ensembling Artificial Bee Colony with Analogy-Based Estimation to Improve Software Development Effort Prediction." IEEE Access (2020) **(IF=4.098)**
- ii. **Muhammad Arif Shah, Dayang Jawawi**, "Missing Data Imputation and Attribute Weight Optimization based Software Development Effort Estimation", Neural Computing and Applications, in-Review, 2020 **(ISI IF=4.664)**
- iii. Sheraz Ahmed, Muhammad Arif Shah, "**Blockchain as a Trust Builder in the Smart City Domain: A Systematic Literature Review**, Accepted (2020). **(IF=4.098)**
- iv. Muhammad Younas, **Muhammad Arif Shah**, "Extraction of Non-Functional Requirement Using Semantic Similarity Distance, Neural Computing and Applications, 2019 **(ISI IF=4.664)**
- v. **Muhammad Arif Shah**, Dayang N. A. Jawawi, Mohd Adham Isa, Muhammad Younas and Ahmad Mustafa, "Adopting the Appropriate Performance Measures for Soft Computing-based Estimation by Analogy," **International Journal on Advanced Science, Engineering and Information Technology**, vol. 10, no. 2, pp. 629-634, 2020. [Online]. Available: <http://dx.doi.org/10.18517/ijaseit.10.2.10178>. (WOS ESCI)
- vi. **Muhammad Arif Shah**, Dayang Jawawi, MOHD ADHAM ISA, MINN: A missing data imputation technique for Analogy-Based Effort Estimation, International Journal of Advanced Computer Science and Applications, 10 Issue 2 **2019 (WOS ESCI)**

- vii. Muhammad Younas, Dayang Jawawi, Imran Ghani, **Muhammad Arif Shah**, and Ahmad Mustafa, Extraction of Non-Functional Requirement using Word2Vec Model, Arabian Journal of Science and Engineering, 2019, p 1-17 (**ISI IF= 1.518**)
- viii. **Muhammad Arif shah**, Dayang Jawawi, Mohd Adham Isa, Localizing Missing Data Imputation, Attribute Weight Optimization and Project Comparison for Analogy-based Estimation, Applied Soft Computing, in-Review **2019 (ISI IF 4.873)**
- ix. **Muhammad Arif Shah**, Dayang Jawawi, "BABE: An Improved Analogy based Software Development Effort Estimation Model", IEEE ACCESS, Accepted, 2019 (**IF=4.098**)
- x. **Muhammad Arif Shah**, Iftikhar Ahmed Khan and Muhammad Shafi, Role of Software Architect: A Pakistani Software Industry Perspective, Research Journal of Recent Sciences ISSN 2277-2502 **Vol. 3(12), 48-52, December (2014)**
- xi. Muhammad Younas, Dayang Jawawi, Imran Ghani, **Muhammad Arif Shah**, and Ahmad Mustafa, Extraction of Non-Functional Requirement using Word2Vec Model, Arabian Journal of Science and Engineering, 2019, p 1-17 (**ISI IF= 1.518**)
- xii. **Muhammad Arif Shah**, Dayang Jawawi, MOHD ADHAM ISA, Soft-Computing Approaches in Analogy based Effort Estimation: A Systematic Mapping Review, IEEE ACCESS, Accepted, 2019 (**Q1 IF=4.098**).
- xiii. **Muhammad Arif Shah**, Dayang Jawawi, MOHD ADHAM ISA, Ahmed Mustafa, Muhammad Younas Towards Adopting the Appropriate Performance Measures for Soft Computing based Estimation by Analogy, International Journal of Pure and Applied Mathematics (IJPAM), Accepted, **2018 (Scopus)**
- xiv. Khattak, U. M., **Shah**, M. A., & Shahzad, A. (2019). Enhancing Integrity Technique Using Distributed Query Operation. In Recent Trends and Advances in Wireless and IoT-enabled Networks (pp. 139-146). **Springer, Cham**
- xv. **Muhammad Arif shah**, Dayang Jawawi, Mohd Adham Isa, LIT: A Localization based Missing Data Imputation Technique for Analogy based Estimation, Journal of Systems and Software, Ready to be Submitted, **2019 (ISI IF 2.559)**
- xvi. Ahmad Mustafa, Wan M.N. Wan-Kadir, Noraini Ibrahim, **Muhammad Arif Shah** and Muhammad Younas, Integration of Heterogeneous Requirements using Ontologies, International Journal of Advanced Computer Science and Applications, 2019 (**WOS ESCI**)
- xvii. Qazi Haseeb, **Muhammad Arif Shah**, "A Solution Framework for Algorithm Analysis with same Worst-Case Asymptotic Complexity", International Journal of Advanced Computer Science and Applications, 2019 (**WOS ESCI**)
- xviii. Muhammad Younas, **Muhammad Arif Shah**, Elicitation of Nonfunctional Requirements in Agile Development using Cloud Computing Environment, IEEE ACCESS, Accepted, 2020 (**IF=4.098**)
- xix. **Muhammad Arif shah**, Dayang Jawawi, Identical Project based Imputation for ABE International Arabian Journal of Science and Engineering, in review 2019, (**ISI IF= 1.518**)
- xx. **Muhammad Arif shah**, Dayang Jawawi, Mohd Adham Isa, Localized Project Comparison for Analogy Based Software Development Effort Estimation, IET Software, in review (2019) (**ISI IF=0.695**)
- xxi. Shah, Amjad, et al. "Improving CBIR accuracy using convolutional neural network for feature extraction." Emerging Technologies (ICET), 2017 13th International Conference on. **IEEE, 2017**
- xxii. Zunash Zaki, Muhammad Arif Shah, "Logistic Regression Based Human Activities Recognition", April 2020, <https://doi.org/10.26782/jmcms.2020.04.00018> (**WOS ESCI**)
- xxiii. **Muhammad Arif Shah**, et al. "Communication management guidelines for software organizations in Pakistan with clients from Afghanistan." *IOP Conference Series: Materials Science and Engineering*. Vol. 160. No. 1. IOP Publishing, 2016.
- xxiv. **Muhammad Arif Shah**, Qazi Haseeb, Theoretical Analysis of Algorithms with Quadratic $O(n^2)$ Worst-Case Asymptotic Complexity, Data Journal, In Review **2019 (ISI ESCI)**
- xxv. Ahmad Mustafa, Wan M.N, Noraini Ibrahim, **Muhammad Arif Shah**, Automated Test Cases Generation from Requirements: A Systematic Literature Review, International Journal of Pure and Applied Mathematics, 2018 (**Scopus**)

- xxvi. Muhammad Younas, Dayang Jawawi, Imran Ghani, **Muhammad Arif Shah**, and Ahmad Mustafa, Extraction of Non-Functional Requirement using Word2Vec Model, International Journal of Advanced Computer Science and Applications 2019 (WOS ESCI)
- xxvii. **Muhammad Arif shah**, Dayang Jawawi, MOHD ADHAM ISA, Localized Attribute Weight Optimization for Analogy Based Software Development Effort Estimation, IEEE Transactions on Software Engineering, ready to be submitted, 2019 (ISI IF=3.331)
- xxviii. M. I. Marwat, **M. Arif Shah**, et al, Towards Optimization of Software Engineering Ontologies, ICALTE'2014: International Conference on Advanced Learning Technologies and Education Hammamet, TUNISIA (IEEE) JANUARY 17- 19, 2014
- xxix. Ahmed, Sheraz, **Muhammad Arif Shah**, Ghufuran Ullah, and Karzan Wakil. "A SYSTEMATIC LITERATURE REVIEW PROTOCOL FOR BLOCKCHAIN REVOLUTIONIZING ARENAS OF SMART CITY." DOI NO: <https://doi.org/10.26782/jmcms.2020.05.00011>
- xxx. Ahmad Mustafa, Wan M.N, I. Noraini, **Muhammad Arif Shah**, Atif Khan, Mahdi, Faisal Automated Test Case Generation from Requirements: A Systematic Literature Review", CMC-Computers, Materials & Continua (ISI IF=4.89)
- xxxi. M. Y. Saeed, M. Awais, M. Younas, **M. A. Shah**, A. Khan, Irfan, Marwan"An Abstractive Summarization Technique with Variable Length Keywords as per Document Diversity", CMCComputers, Materials & Continua (ISI IF=4.89)
- xxxii. Rashid Naseem, Bilal Khan, **Muhammad Arif Shah**, Karzan Wakil, Atif Khan, Alosaimi, M. Irfan Uddin, Bader Alouffi, Performance Assessment of Classification Algorithms on Early Detection of Liver Syndrome, Journal of Healthcare Engineering, Journal of Healthcare Engineering, November 2020. (IF1.803, Q2)
- xxxiii. Rashid Naseem, Bilal Khan, Arshad Ahmad, Almorgen, Saima Jabeen, Bashir Hayat, **Muhammad Arif Shah**, Investigating Tree Family Machine Learning Techniques for a Predictive System to unveil Software Defects, Complexity. (ISI IF = 2.462)
- xxxiv. Liver-Tumor Detection Using CNN ResUNet, CMC-Computers, Materials & Continua (ISI, IF=4.89)
- xxxv. Impact of Multiple Pox Controllers on Software Defined Network, CMC-Computers, Materials & Continua (ISI IF=4.89)
- xxxvi. Scrutiny of Tree Family for Risk Prediction in Software Requirements, Complexity Journal (ISI IF = 2.462)
- xxxvii. Lung Segmentation for Tuberculosis Pattern Construct by Deep Learning, CMC-Computers, Materials & Continua (ISI IF=4.89)
- xxxviii. A hybrid technique using minimal spanning tree and analytic hierarchical process to prioritize functional requirements for parallel software development
- xxxix. Jawad, K., Shah, M. A., & Tahir, M. (2022). Students' Academic Performance and Engagement Prediction in a Virtual Learning Environment Using Random Forest with Data Balancing. *Sustainability*, 14(22), 14795.

LANGUAGES

- Urdu
- English
- Pashto
- Hindko
- Punjabi
- Urge to learn Mandarin and German