

# CURRICULUM VITAE

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## PERSONAL DETAILS

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Name	Maryam Amin
Husband's Name	Muhammad Amin
Religion	Islam
Gender	Female
Nationality	Pakistani
Domicile	Punjab
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Marital Status	Married
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## EDUCATION

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- PhD in Computer Science (in Progress) CGPA: 3.91  
International Islamic University, Islamabad 83.16%
  - MS in Software Engineering (2007) CGPA: 3.65  
International Islamic University, Islamabad 80%  
**First Position**
  - BCS (Hons) (2005) CGPA: 3.73  
International Islamic University, Islamabad 81.65%  
**Third Position with Distinction**
  - F.Sc (2000) 71.73% Marks  
Federal Board
  - Matriculation (1998) 81.18% Marks  
Rawalpindi Board
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## TEACHING EXPERIENCE

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- **Lecturer**  
International Islamic University, Islamabad  
From: 15-01-2024

To: till date

○ **Assistant Professor**

BIIT, PMAS University of Arid Agriculture, Rawalpindi

From: 23-09-2013

To: 31-08-2023

Total Duration: **10 years, 11 months, 8 days**

Job Profile:

- Teaching CS and SE Courses
- Head, Computing Knowledge Group
- Student's Counseling and Mentorship
- Member, Debating and Content Writing Society
- Supervision of student's final year projects
- Curriculum Development for CS and SE
- Member, Software Engineering Society
- Member, Cultural/Drama and Movies Society

○ **Lecturer**

Faculty of Computing, Riphah International University, Islamabad

From: 15-09-2008

To: 15-09-2010

Total Duration: **2 years, 1 day**

Job Profile:

- Teaching CS and SE Courses
- Student's Counseling and Mentorship
- Member, Research & Development Committee
- Supervision of student's final year projects
- Member, Software Engineering Society

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**COURSES TAUGHT**

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○ **Computing Domain**

- Discrete Structures
- Analysis of Algorithms

○ **Programming Domain**

- Programming Fundamentals
- Data Structures & Algorithms
- Object oriented Programming

○ **Databases Domain**

- Database System
- Distributed Databases

○ **AI and Security Domain**

- Artificial Intelligence
- Information Security

○ **Software Engineering Domain**

- Software Engineering
- Software Requirements Engineering
- Information Technology Project Management
- Software Quality Assurance

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**TECHNICAL TOOLS PROFICIENCY**

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○ **Programming Languages**

C/C++, Visual C, Java

○ **Database Tools**

MS Access, Oracle, SQL

○ **Software Engineering Tools**

MS Visio, MS Project

○ **Formal Methods Tools**

Z, Petri Nets

○ **Text Formatting Tools**

MS Office, Latex

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**SOFTWARE DEVELOPMENT EXPERIENCE**

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○ **Project Developer**

From: 15-01-2005

To: 15-08-2005

Total Duration: **7 months, 1 day**

Development Profile:

Development of a market project titled “Time and Resource Management System” for a well reputed Software development Organization Digital Processing System (DPS), Islamabad. The project was handed over to the organization on August 2005, after it was successfully completed and tested.

○ **Project Developer**

International Islamic University, Islamabad

From: 01-06-2004

To: 30-09-2004

Total Duration: **4 Months**

Development Profile:

The project titled “Library Management System” was developed for Library of International Islamic University, Islamabad. The project was successfully completed on September 2004, to assist the library staff in their every day transactions.

○ **Internee**

Engram Technologies International, Islamabad

From: 15-06-2004

To: 15-08-2004

Total Duration: **2 months, 1 day**

Development Profile:

Assistance of project team in carrying out different software development activities for one of their commercial projects.

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### RESEARCH INTERESTS

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My research interest is in modeling and verification of complex systems by using **Formal Methods** which are mathematical techniques applied during early stages of system development in order to identify potential inaccuracies when they are easier and cheaper to be fixed. My publications concern the integration of formal approaches during software development lifecycle which contributes greater reliability and robustness as designed formal model is checked through application of mathematical verification tools such as simulation and model checking in order to reveal hidden errors. Furthermore, my research publications also include formal modeling and verification of quantum protocols such as BB84 and security protocol like Resurrecting Duckling.

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### JOURNAL PUBLICATIONS

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1. Maryam Jamal, Humaira Ashraf, NZ Jhanjhi. “**Machine Learning-based Aircraft Conflict Prediction: A Systematic Literature Review**”, Preprints, 2023.
2. Maryam Jamal, Nazir Ahmad Zafar, Atta-ur-Rahman, Dhiaa Musleh, Mohammed A. Gollapalli, Sghaier Chabani. “**Modeling and Verification of Aircraft Takeoff Through Novel Quantum Nets**”, Computer, Materials and Continua (CMC), ISSN: 1546-2218, Vol. 72 No. 2, pp 3331-3348, 2022.  
**(SCI 2021 Impact Factor 3.86)**
3. Maryam Jamal and Nazir Ahmad Zafar. “**Modeling and Formal Specification of Air Traffic Control System Using Z Notation**”, JISR Management and Social Sciences & Economics (JISR-MSSE), ISBN 1998-4162, Vol. 5 No. 2, 2007.  
**(HEC Category: Y)**

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### CONFERENCE PUBLICATIONS

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1. Maryam Jamal and Nazir Ahmad Zafar, “**Extending Agent-based Mobile Petri Nets with Access Control**”, IEEE International Conference on Communication, Computing and Digital Systems (C-CODE), ISBN 978-1-5090-4448-1, IEEE Catalogue No. CFP17J80-PRT, pp 133-138, 8<sup>th</sup> – 9<sup>th</sup> March, 2017.

2. Maryam Jamal and Nazir Ahmad Zafar, “**Enhancing Formal Semantics of Activity Diagram With Object Node**”, IEEE International Conference on Innovations in Electrical Engineering and Computational Technologies (ICIEECT), ISBN 9781509033119, IEEE Catalogue No. CFP17H80-POD, pp 164-169, 5<sup>th</sup> – 7<sup>th</sup> April, 2017.
3. Maryam Jamal and Nazir Ahmad Zafar, “**Formal Semantics of Executable Node and Activity Group of UML 2.5 Activity Diagram**”, IEEE International Conference on Communications Technologies (ComTech), ISBN 978-1-5090-5984-3, IEEE Catalogue No. CFP17CMR-ART, pp 174-179, 19<sup>th</sup> – 21<sup>st</sup> April, 2017.
4. Maryam Jamal and Nazir Ahmad Zafar, “**Formalizing the Resurrecting Duckling into Hierarchical Coloured Petri Nets**”, IEEE 12th International Conference on Emerging Technologies (ICET), ISBN 9781509035533, IEEE Catalogue No. CFP16617-POD, pp 56-61, 18<sup>th</sup> – 19<sup>th</sup> October 2016.
5. Maryam Jamal and Nazir Ahmad Zafar, “**Formalizing Structural Semantics of UML 2.5 Activity Diagram in Z Notation**”, IEEE 10<sup>th</sup> International Conference on Open Source Systems and Technologies (ICOSST), ISBN 978-1-5090-5586-9, IEEE Catalogue No. CFP1681T-ART, pp 66-71, 15<sup>th</sup> – 17<sup>th</sup> December 2016.
6. Maryam Jamal and Nazir Ahmad Zafar, “**Transformation of Activity Diagram into Coloured Petri Nets Using Weighted Directed Graph**”, IEEE 14th International Conference on Frontiers of Information Technology (FIT), ISBN 978-1-5090-5300-1, IEEE Catalogue No. E5999, pp 181-186, 19<sup>th</sup> – 21<sup>st</sup> December 2016.
7. Maryam Jamal and Nazir Ahmad Zafar, “**Formalizing Air Traffic Control System Using Agent-based Mobile Petri Nets**”, IEEE 6th International Conference on Information and Communication Technologies (ICICT), ISBN 9781467389082, IEEE Catalogue No. CFP15629-POD, pp 12-17, 12<sup>th</sup> – 13<sup>th</sup> December 2015.
8. Maryam Jamal and Nazir Ahmad Zafar, “**Requirements Analysis of Air Traffic Control System Using Formal Methods**”, IEEE International Conference on Information and Emerging Technologies (ICIET), ISBN 1-4244-1246-3, IEEE Catalogue No. 07EX1795, pp 216-222, Karachi, Pakistan, 6<sup>th</sup> – 7<sup>th</sup> July 2007.
9. Maryam Jamal and Nazir Ahmad Zafar, “**Integration of Graph Theory and Z Notation for Modeling of Air Traffic Control System**”, 8<sup>th</sup> International Pure Mathematics Conference (IPMC), 24<sup>th</sup> – 26<sup>th</sup> August 2007.

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#### TRAININGS/WORKSHOPS

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- I have participated in a teachers workshop on “**Android, iOS, Flutter and React Native**” held by BIIT, PMAS University of Arid Agriculture, Rawalpindi  
From: 2-08-2021                      To: 24-9-2021                      Total Duration: 1 Months 22 Days
- I have participated in a workshop on “**Personality Development Training Program**” held by Tarbyah Department, Riphah International University, Islamabad.  
From: 28-12-2009                      To: 28-1-2010                      Total Duration: 1 Month

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#### REFERENCES

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- **Dr. Nazir Ahmad Zafar**  
Director and Professor,  
COMSATS University Islamabad,  
Sahiwal, Pakistan  
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○ **Dr. Saad Naeem Zafar**

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Riphah International University,  
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