Amber Hayat

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AREAS OF INTEREST	Biometrics, Security, Machine Learning, Deep Learning, Internet of Things

EDUCATION

Indian Institute of Technology, Delhi — 2020 - Cont.
PhD in Information Technology
Area : Template Protection in Biometrics
CGPA - 8.441/10
Advisor: Prof. Ashok Kumar Bhateja, Prof. Vireshwar Kumar, Prof Prem Kumar Kalra (Retired)

Indian Institute of Technology (Formerly Indian School of Mines), Dhanbad — 2012 - 2014
M.Tech in Computer Science and Engineering
CGPA - 7.08/10
Advisor: Dr. Annavarpu Chandra Sekhara Rao, Dr.Haider Banka

Mahatma Jyotiba Phule Rohilkhand University, Bareilly, Uttar Pradesh
2008 - 2012
B.Tech in Computer Science & Information Technology
CGPA - 8.08/10

PUBLICATIONS

"FinTem: A secure and non-invertible technique for fingerprint template protection", Amber Hayat, Syed Sadaf Ali, Ashok Kumar Bhateja, Naoufel Werghi, Computers & Security 142 (2024): 103876.

"SigTem: A secure and non-invertible technique for Online Signature template protection", Amber Hayat, Syed Sadaf Ali, Vireshwar Kumar, Ashok Kumar Bhateja, Elsevier's Expert System & Applications (2025).

"Multimodal Biometric Template Protection based on Deep Binary Encoding", Amber Hayat, Veeravalli Jasmitha, Dase Chaitraja, Vireshwar Kumar, Ashok Kumar Bhateja, Accepted at 25th International Conference on Software Quality, Reliability and Security.QRS 2025

"DeepShieldFed: Securing Face Templates via Deep Cancelable Transforms and Federated Learning", Amber Hayat, Md Atiqur Rahman Ahad, Vireshwar Kumar, Ashok Kumar Bhateja, Accepted at 2025 IEEE International Joint Conference on Biometrics IJCB 2025

"An Approach for Multimodal Biometric Authentication using Genetic Algorithm", Amber Hayat, Abhishek Kumar, Ashok Kumar Bhateja, Saibal Pal, ICCCNT, 2024 15th International IEEE Conference on Computing, Communication and Networking Technologies

"Intelligent System for Skin Disease Prediction using Machine Learning", Ahmed A. Elngar, Rishabh Kumar, Amber Hayat and Prathamesh Churi, CONSILIO 2021.

"Green-IoT (G-IoT) Architectures and Their Applications in the Smart City", Mayank Goel, Amber Hayat, Akhtar Husain, Surjeet Dalal, Book chapter in Book: Green Internet of Things for Smart Cities Concepts, Implications, and Challenges

AWARDS AND FELLOWSHIPS

- Received **Best Presentation Award** for presenting at "IEEE CIS Summer School on Emerging Trends in Computational Intelligence, Deep Learning,

and Large Language Models" at IIT Indore, India.
period: July 23-25, 2025 IEEE CIS Summer School on Emerging Trends in Computational Intelligence, Deep Learning, and Large Language Models

- Received **IEEE Travel Grant** for attending and presenting at Summer School in Biometrics in Alghero, Italy.
period: 2 June 2025- 06 June 2025 Biometrics Summer School 2025

- Received **IEEE Travel Grant** for attending Winter School in Biometrics in Shenzhen, China. Received **Outstanding Performance** Award at Biometrics Winter School.
period: 21 Jan 2024- 25 Jan 2024 Biometrics Winter School 2024

- Received **TEQIP II Fellowhip** in category "**M.Tech Scholarships at IIT Dhanbad"**.

- Received **IEEE ICIP Conference Registration waiver** for attending the ICIP 2024 Conference in AbuDhabi, UAE. IEEE ICIP Conference 2024.

EXPERIENCE **Assistant Professor(Senior Scale)** at University of Petroleum & Energy Studies (UPES), Dehradun, Uttarakhand, India, (Aug 2016-Aug 2020).
- Activity Coordinator for B.Tech (CS+CL) final year, responsible for conducting meetings and analyzing projects.
- Class Coordinator for B.Tech (CS+SCF), 2nd year, responsible for holding various class activities and handling various issues of students.
- Awarded by Vice Chancellor for efficiently testing e-lab platform.
- Participated in design discussions, training and code reviews.
- Mentor for Project Team selected for Smart India Hackathon (organized by ISRO), titled "ARP Spoofing Detection & Prevention" at Ahmedabad, India in 2016.
- Mentor for Project Team (UPES) selected for Smart Rajasthan Hackathon (organized by Govt. of Rajasthan), project titled "Paryathan Guru" at Udaipur in Nov. 2017.
- Revised Curriculum for MTech PLE Software Engineering.
- Member of Organizing Committee, UPES Petrotech Student Chapter-A Canvas of Life., designed to uphold the weaker sections of society.
- Designed Syllabus for IoT 4th year Subjects specialized to IoT, namely," Designer of Smarter Cities, Descriptive Analytics for IoT,"
- Worked on a Project for IoT with Sensworx Technologies Hyderabad, representing UPES
- Mentor for four teams participated in a Poster competition titled" Education in 2025-Our Vision". One of the teams got a Consolation Prize from SoCS. Held in Dec 2017.
- Attended Symposium on Research Trends in Machine Learning on 21 Dec 2017.
- Committee member of SoCS magazine, responsible for interviews of final-year students.

- Organized Industrial Visit for B.Tech CS+CL students3rd year to Pune from 3to 6 April,2018
- Panel Member for IBM ICE Event, Technical Paper presentation IBM Event. Held on 18 April.
- Faculty coordinator for summer excitement program: Basketball, Singing, Fashion Show, Poetry.
- Attended a day workshop on "Internet of Things using Node MCU and Raspberry Pi3" on 25 April 2018.
- Organized an expert talk on "Embedded Systems for Alternative & Augmentative Communication."
- Guided more than 20 Undergraduate Projects.
- Organizing committee member for IEEE, International Conference on Next Generation Computing Technologies (NGCT) at UPES,2017.
- Organizing Committee Member for session Management at the MHRD Conference titled "Application of Indian Language in Robotics" on 8th March 2019 at UPES
- Taught subjects like Cloud Computing, Internet of Things, Data Structure, Analysis and Design of Algorithms, Discrete Mathematics, Software Engineering, Object Oriented Analysis & Design, Computer Networks, Cryptography & Network Security, Cloud Computing.
- Taught Programming in C, C++, Python and SQL.

Assistant Professor at Vasantdada Patil Pratishthan's College of Engineering and Visual Arts, Mumbai, (April 2015 -May 2016)
- Attended two week STTP on "Open Source Software Tools for Engineering Curriculum & Network Simulator Version 2(NS-2)".
- Class Advisor for BE,3rd year. Responsible for handling class issues.
- Carried out the accreditation work (NBA).
- Taught HTML, JavaScript, Linux Programming, Analysis & Design of Algorithms, and Data Structure.

Assistant Professor at Sardar Patel Institute of Technology Munshi Nagar, Andheri (West), Mumbai , (July 2014-Oct 2014)
- Organized Orientation Program on Structured & Object-oriented Analysis and Design.
- Carried out accreditation (NBA) work.
- Taught Structured & Object-oriented Analysis and Design, System Security.

Part Time Faculty at GATE Academy -Mumbai, India, (July 2012 to May 2014)
- Taught Discrete Mathematical Structures and Analysis & Design of Algorithm.

PROJECTS

Real-time Monitoring and Alerting of Waterbodies: Land Dynamics and Water Quality parameters using IOT. *Project at UPES-UPES R & D sponsored (Internal Agency)*
This project Analyzes the Environmental Impact of Water Bodies.GIS system integrates databases, models, calculation methods, and directives to provide comprehensive data on water bodies. This integrated approach allows researchers to efficiently perform various tasks:

- Assess Water Body Quality: Evaluate the overall health and quality of water bodies.
- Review Activity of Water Users: Monitor and analyze activities of those using the water bodies.
- Rank Water Users by Environmental Impact: Determine which users have the greatest impact on the environment.
- Evaluate Environmental Load: Use a basin-based approach to assess the environmental pressure on water bodies.
- Produce Reports: Generate detailed reports based on the analysis.
- The GIS interface is designed using ArcView software, with spatial and attribute data stored in a local geodatabase, ensuring a user-friendly experience for accessing and manipulating the data.

Highly Secured Voting System using Fog Computing   *Project at UPES-UPES R & D sponsored (Internal Agency)*
In this project, a secured voting a system using Fog Computing. The proposed architecture is for the Fog node, which communicates with end devices and cloud services. Cross-network support, free-form addressing devices, and IP addresses are also considered. The intelligent adapter and fog manager modules use specific interfaces to communicate with the cloud.

PROGRAMMING SKILLS/TOOLS

C/C++, Matlab, Python, SQL, HTML, Javascript

KEY-COURSES

Biometrics, Image Processing, Data Mining, Machine Learning, Artificial Intelligence, Analysis & Design of Algorithms, Cryptography

MISCELLANEOUS

- Selected as IIT Delhi Research Ambassador for Springer (2025) India.
- IEEE & ACM member since 2024-present.
- **Teaching assistant** (Biometrics Security, Cryptography & Network Security, Analysis & Design of Algorithms, Data Structures) at IIT Delhi, 2020 - Cont.
- Attended the ACM Winter School 2024 on "Introduction to Modern Cryptography" at IIT Madras from 16-12-2024 to 21-12-2024
- Delivered a talk as a Plenary Speaker on "Internet of Things & Fog Computing" at the International Conference on Advances in Mathematics, Engineering & Technology –2018.
- Delivered an expert talk on the "Internet of Things" at Hyderabad Metropolitan Water Supply and Sewerage Board.
- Attended 2nd International Conference on Recent Advances in Information Technology, RAIT2014 at ISM (IIT Dhanbad)
- Program Committee member for Amity International Conference on Artificial Intelligence (AICAI 2019)
- Core Team Member (2021-2022) in the Wellness Club at IIT Delhi, Responsible for organizing & coordinating events.
- Qualified **UGC NET** June-2015.

REFERENCES **Prof. Ashok Kumar Bhateja, Professor, IIT Delhi** A.K.Bhateja@cse.iitd.ac.in

Prof. Vireshwar Kumar, Assistant Professor, IIT Delhi viresh@cse.iitd.ac.in

Prof. Haider Banka, Associate Professor, IIT Dhanbad haider@iitism.ac.in

Prof.Akhtar Husain, Associate Professor, MJPRU,Bareilly husainakhtar@gmail.com

Prof. Ajay Prasad, Professor, UPES Dehradun aprasad@ddn.upes.ac.in

Prof. Anil Kumar Bisht, Assistant Professor, MJPRU, Bareilly $anilbisht_20@yahoo.com$

Prof.**AshaRawat**, **AssistantProfessor**, **NMIMS**, **Mumbai**$asha.rawat@nmims.edu$