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EDUCATION

- **PhD** Engineering (Minor in Bioinformatics) Louisiana Tech University, Ruston, LA, USA
- **MS** Molecular Science and Nanotechnology Louisiana Tech University, Ruston, LA, USA
- **MSc** Bioinformatics Jamia Millia Islamia, New Delhi, India

Experiences

Assistant Professor (Bioinformatics) (2022 to continue), Department of Computer Sciences and Engineering, School of Engineering Sciences and Technology, Jamia Hamdard University, New Delhi, India

Teaching Faculty (Senior), (2016-2022): Department of Bioengineering, University of California, Riverside, CA, USA

Analytics Architect (2015-2016): CenturyLink, Denver, CO, USA

Lecturer (2006-2008): Bioinformatics, Guru Nanak Dev, University, Amritsar, India

Head (2005-2006): Bioinformatics, Singhania University, Rajasthan, India

Agriculture Engineer (1996 – 2002): Ministry of Defense & Aviation, Riyadh, Saudi Arabia

Courses taught: Structural Bioinformatics and Drug Design, Drug Design Lab, Introduction to Bioinformatics, Dynamics of Biological Systems Biomaterials, Biomedical Imaging, Introduction to Bioinformatics, Python, Computer Application & Bioinformatics, Data Mining, Artificial Intelligence, and Next Generation Sequencing, Computational Biology, Machine Learning

Lab Course: Computational Modeling Software, Bioinformatics software

Research Guidance: PG Students (10), Undergraduate Students (12)

Research Ongoing: (Area of Interest: Artificial Intelligence/Machine Learning)

1. Estimation of macro human emotions using non-invasive Bio-sensors. We are developing a device embedded with biosensors like ECG, Oximeter, GSR, Body Temp, and Gyroscope. These sensors will periodically gather data non-invasively from a subject, along with feedback on their current emotion. This data will be further used to study the correlation between variations of these measurements and the provided emotional state at a point in time.

2. Detecting Lung Cancer Using Machine Learning Algorithms

Postdoctoral Fellowship (2014–2015): Bishop Molecular Modeling Lab, Louisiana Tech University, Ruston, LA, USA. Worked to develop techniques for on-demand comparative genomics studies of mononucleosomes using high throughput – high performance all-atom molecular dynamics simulations

PUBLICATIONS

Badar, M. S*, Kupwade-Patil, K., Bernal, S. A., Provis, J. L., Allouche, E. N., Accelerated Carbonation Induces Corrosion of Steel Rebars in Low and High Calcium Fly Ash Geopolymer Concretes, *Construction & Building Materials*, Vol 61, No 49, pp. 79-89, 2014

Kupwade-Patil, K, Allouche, E.N, C.A. Watts and M.S. Badar, *Selected Studies on Durability of Geopolymer Concretes*, ASTM Special Technical Publication (STP), 2012

K. Kupwade-Patil*, M.S. Badar, Erez N Allouche, *Evaluation of Geopolymer Concretes at Elevated Temperatures*, *Proceedings of the American Ceramic Society (ICACC-FS1- 019-2013)*, Daytona Beach, FL, USA, Feb 01, 2013

Kupwade-Patil*, M.S. Badar, E.N. Allouche, *Ceramic Engineering and Science Proceedings Volume 34, Issue 10 - Developments in Strategic Materials and Computational Design IV*, ISBN: 978-1-118-80727-9, E-Book, Wiley, 336 pages, Nov 2013

Analyzing co-clustered and functionally connected human gene pairs, Mohammad Badar, <https://bioinformatics.pulsusconference.com/2018> 2nd World Congress on Bioinformatics & System Biology, Dubai, UAE, October 15-16, 2018

Selected durability studies of geopolymer concrete with respect to carbonation, elevated temperature, and microbial induced corrosion, Mohammad Sufian Badar, *ProQuest Dissertations And Theses; Thesis (Ph.D.)--Louisiana Tech University, Ruston, LA, USA 2014.; Publication Number: AAT 3662218; ISBN: 9781321535105; Source: Dissertation Abstracts International, Volume: 76-05(E), Section: B.; 141 p. Nov 2015*

Toward Online Comparative Genomics of Mononucleosomes, T. C. Badar, M. S., Pereddy, V., Mahadasyam, P., Bishop, Aug 2014, EPSCoR 2014, Baton Rouge, LA

The Evaluation of Geopolymer Concrete against Microbial Induced Corrosion (MIC) Allouche, EN Badar, M. S., Montes, C., Minullina, R., Hindmarsh, P. L., Lvov, Y., Allouche *UCT (Underground Construction Technology) 2014*, Houston, TX, George R. Brown, 2014

Prediction and Prognosis on Breast Cancer by Machine Learning, Mohammad Sufian Badar, Alain Abran, Professor, Department of Software and IT Engineering École de technologie supérieure, Canada, 3rd Annual Congress on Bacterial, Viral and Infectious Diseases, dated June 18-19, 2020, Dubai, UAE

Investigating host-virus interaction mechanism and phylogenetic analysis of pathogenic viral proteins, Hassan, M. Imtaiyaz*, Badar, M. Sufian.,
<https://doi.org/10.1371/journal.pone.0261497> PLOS ONE, Dec 16, 2021

Diabetic Retinopathy Detection using Artificial Intelligence and Machine Learning
Approach-A Research, Kumar Abhishek, Mansi Bhandari, Richa Gupta*, Jawed Ahmed and
Sufian Badar, International Journal of Ophthalmic Pathology, DOI:
10.4172/2324-8599.12.3.020, 31 May, 2023

Designing of novel HDAC Prediction for multi-molecular feature based machine learning
Web application platform utilized for isolation of novel compounds genistin and genistein
from Mactyloma uniflorum for its HDAC inhibitory and anti-leukemic potential in-vitro and
in-vivo mouse model, Humaira Farooqi, Amber Rizwan; Faiq Alam; Aisha Idris; Aatiquah
Aqeel; Mohammad Sufian Badar, European Journal of Cancer, Submitted

Presentations

Badar, M. S., Montes, C., Hindmarsh, P. L., Allouche, E. N., Resistance of Geopolymer to
Microbial Induced Corrosion, ASM2013, 113th General Meeting, American Society of
Microbiology, Denver, Colorado, May 18-21, 2013

This work was also presented at the 87th Annual Meeting of Louisiana
Academy of Sciences (LAS); Grambling State University, Mar 9, 2013

UCT (Underground Construction Technology) 2014, Houston, TX, Jan. 28 – 30, 2014
Badar, M. S., Embry-Riddle Aeronautical University Daytona Beach, Florida, August
6-8, 2017

Poster Presentation

Badar, M. An Effective Instructor, American Society for Engineering Education (ASEE), S.,
Pereddy, V., Mahadasyam, P., Bishop, T. C., Toward Online Comparative Genomics of
Mononucleosomes, LA-SiGMA, Baton Rouge, LA, May 5, 2014 (Also at EPSCoR 2014, Baton
Rouge, LA, Aug 18, 2014)

Invited Talk/Speaker

1. Bioinformatics search tools, BLAST, Guru Nanak Dev University,
Amritsar, Punjab, India, Nov 3, 2007
2. Internet of Things: Face and Emotion Detection, Maulana Azad National Urdu
University, Hyderabad, India, Nov 27, 2019
3. Association of Muslim Professionals (AMP) Online Career Guidance Seminar, July
20-30th, 2020

4. Estimation of macro human emotions using non-invasive Bio-sensors. The 2nd International Conference on Networks and Cryptology (NetCrypt), School of Computer & Systems Sciences, Jawaharlal Nehru University, New Delhi, India, 4-6 Dec 2020
5. Workshop on "eContent Development and Online Pedagogy, To inspire and motivate the future Generations by eLearning Maulana Azad National Urdu University, Hyderabad, India, Oct 25 - 30, 2021
6. Lecture on "Covid 19 Analysis and Diagnostics Through Machine Learning", The University of Technology and Applied Sciences, Salalah, Oman, Nov 30, 2021
7. Lecture on "Current Development in Engineering and Technology (CCET) 2022", IEEE International Conference, Sage University, Bhopal, India, Dec 23-24, 2022
8. Lecture on Emerging Technology at Central Academy of Police Training (CAPT), Bhopal, Feb 27-28, 2023
9. Lecture on Drug Design, Department of Chemistry, Jamia Millia Islamia, New Delhi, Jan 24-25, 2025

Chapter Authoring: 17 Chapters

Book Editing

1. "A Guide to Applied Machine Learning For Biologists," Springer Science and Business Media Company, Switzerland, June 2023
2. "Diagnosis & Analysis of COVID-19 using Artificial Intelligence and Machine Learning based Techniques", Elsevier, Amsterdam, Netherlands, July 2024
3. "COVID-19: Cause, Transmission, Diagnosis, and Treatment", Bentham Science Publishers, Executive Suite Y - 2, Building Y Saif Zone, Sharjah, U.A.E
4. "Applying Ethics to Artificial Intelligence", Wiley, Hoboken, NJ 07030-5774 (in press)
5. "Fostering Machine Learning and IoT for Blockchain Technology: Smart Cities Applications", Springer Nature, two Volumes (submitted)

Research Guidance: PG Students (10), Undergraduate Students (12)

References

1. Dr. Thomas C. Bishop, Associate Professor, Department of Chemistry and Physics, Louisiana Tech University, Ruston, LA, 71270, USA, 318-257-5209, bishop@latech.edu
2. Dr. David Mills, Professor, and Director, Departments: Biological Sciences, Center for Biomedical Engineering and Rehabilitation Sciences, Louisiana Tech University, Ruston, LA, 71272, USA, (318) 257-4354, dkmills@latech.edu
3. Dr. Nazimuddin M. Wasiuddin, Associate Professor of Civil Engineering, College of Engineering and Science, Louisiana Tech University, Ruston, LA, 71272, USA, (318) 257- 2392/2306, wasi@latech.edu
4. Professor Parul Agarwal, Head, Department of Computer Science and Engineering School of Engineering Sciences and Technology (SEST), Jamia Hamdard University, New Delhi, 110062, pagarwal@jamiahamdard.ac.in

5. Professor Farheen Siddiqui, Dean, Department of Computer Science and Engineering
School of Engineering Sciences and Technology (SEST), Jamia Hamdard University, New
Delhi, 110062, fsiddiqui@jamiahamdard.ac.in