

Romasa Qasim

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Computational Science Program, University of Texas at El Paso, 500 W. University Ave., TX, USA

Research Interest

- Computational Biology of tumor progression focusing on receptor-ligand dynamics
- Mechanistic modeling of tumor microenvironment and analysis of therapeutic outcome
- Machine Learning, Computer Vision and its application to biological dataset

Education

Ph.D. in Computational Science, University of Texas at El Paso (UTEP), TX, USA	2022 - present
Research Area: Mechanistic modeling of tumor microenvironment	
Advisor: Anass Bouchnita, PhD	
Expected completion date: Aug, 2026	
M.S. in Computational Science, University of Texas at El Paso, USA	2022 - 2025
Research Area: Agent-based modeling of tumor progression	
CGPA: 3.94/4.00	
M.S. in Computer Science & Engineering, North South University, Bangladesh	2011 - 2013
CGPA: 3.97/4.00 Vice-Chancellor's Gold Medal	
B.S. in Computer Science, University of Karachi, Pakistan	2006 - 2009

Professional Positions

Lecturer in Computer Science Department, Independent University, Bangladesh	Jan 19-Aug 22
Adjunct Faculty , Independent University Bangladesh	Aug 17-Dec21
Lab Instructor in North South University, Bangladesh	Jan 14-Dec 15
Programmer/Lead Programmer in North South University, Bangladesh	10/11 - 02/13

Research Experience

Research Assistant in Bouchnita Lab, The University of Texas at El Paso, TX, USA	Jan 24-present
• Extended the 3D agent-based multiscale model to incorporate detailed tumor microenvironment biology, including physiological ligand concentration and binding affinity.	
• Introduced pharmacokinetics and pharmacodynamics of Tyrosine Kinase Inhibitors (TKIs)	
• Improved computational efficiency by using differential equations via numerical methods.	

Publications

Journal Articles:

1. Romasa Qasim, Anass Bouchnita (2025). EGFR-EGF interaction dynamics modulate signaling threshold for tumor initiation [in review]

2. Romasa Qasim, N. Kauser, & Tahseen Jilani (2010). Secondary structure prediction of RNA using machine learning method. International Journal of Computer Applications (IJCA), 10(6), 15–22.

Theses:

1. Romasa Qasim (2025). Multiscale Integration Of Receptor-Ligand Dynamics Into Discrete And Continuous Tumor Growth Models With Application To Tyrosine Kinase Inhibitor Treatment. (Masters Thesis, Computational Science Program, University of Texas at El Paso).

Conference Presentations:

1. Romasa Qasim, Anass Bouchnita, "Multiscale models of tumor growth with explicit receptor-ligand dynamics to quantify tumorigenesis conditions", 32th Joint UTEP/NMSU workshop on Mathematics, Computer Science, & Computational Sciences, El Paso, TX, USA, Nov 2025
2. Romasa Qasim, Anass Bouchnita, "Multiscale, continuous and data-driven surrogate models to analyze the conditions influencing tumor growth during EGFR overexpression", Institute of Biological Engineering Annual Conference 2025, Salt Lake City, Utah, September 2025.
3. Romasa Qasim, Anass Bouchnita, 'A 3D Multiscale Model to Explore the Role of EGFR Overexpression in Tumorigenesis, 30th Joint UTEP/NMSU Workshop on Mathematics, Computer Science, and Computational Sciences, El Paso, TX, USA, November 2023
4. Romasa Qasim, G.M. Sayedur Rahman, Shazzad Hosain (2017), 'In-silico discovery of potential inhibitor against NS4B polymerase of HCV', Proceedings of International Conference of Genome, Bioengineering and Nano-technology, North South University, Dhaka, Bangladesh.

Skills

Scientific Tools: Tensorflow, Keras, PyTorch, MATLAB, Anaconda, LINUX, Git, Docker, and ParaView

Programming Languages: Python, R, C++, C#, C, SQL, Java, and Shell Scripting

Soft Skills: Team-work, leadership, adaptability, emotional intelligence, communication & resilience

Training and Workshops

Fully funded Summer camp on Data and AI Intensive Research with Rigor and Reproducibility (DAIR³) at University of Texas at San Antonio (UTSA), 06/16/25 - 06/21/25

Hands-on machine learning and HPC workshop, University of Texas at El Paso, 09/19/25-10/10/25

Machine learning and Big data workshop, University of Texas at El Paso, 07/29/25 - 07/30/25

Teaching Experience

Graduate Teaching Assistant of Calculus I & II at UTEP, TX, USA

Sep 22-Dec23

Teaching Assistant of Machine learning, Web development at NSU, BD

09/12 - 05/13