



# Yousef Jamali

Department of Mathematics, Tarbiat Modares University

P.O.Box: 14115-111, Tehran, Iran

phone: +(98) 9390676860

Official email: Y.Jamali@Modares.ac.ir

Personal email: Y.Jamali@Gmail.com

## ABOUT ME

I am an assistant Professor at the Tarbiat Modares University, where I conduct research on the interdisciplinary area of complex systems especially on the biophysical modeling and social network dynamics. My interests are how to simulate and model the complex system in-silico to better understand their underlying mechanism and investigate them under different conditions. The main approaches in these modeling are ABM and Dynamics of/on Complex networks.

## Skills

Modeling: ABM, CA, MD, BD

Programming: Fortran, Python, JAVA

Complex Network Dynamics

Teaching more than 6 different courses

Advising more than 20 graduate students

Graphic Design: Photoshop, Illustrator, C4D

## Carrier

### Assistant Professor (2013 - Present)

Assistant Professor of Bio-Mathematics

Tarbiat Modares University

### Postdoc researcher (2011 - 2012)

Researcher in computational Nano Science. School of Nano Science, Institute for Studies in Theoretical Physics and Mathematics (IPM), Tehran, Iran

Research titles:

- Multiscale modelling of action potential and voltage gated ion channels.
- Effect of electromagnetic field on voltage gated calcium channels

### Postdoc researcher (2009 - 2011)

Researcher in computational biophysics. Molecular Cell Biomechanics Lab, Department of bioengineering, UC Berkeley, USA

Research titles:

- Mechanotransduction
- Modeling of Nucleocytoplasmic Transport
- Modeling of Focal Adhesion formation



## EDUCATION

### B.Sc. (1996 - 2001)

Physics; Department of Physics, Sharif University of Technology, Iran.

Project Title: Design of Hologram setup

### M.Sc. (2001 - 2004)

Condense Matter Physics; Department of Physics Sharif University of technology, Iran.

Dissertation Title: Multi-scale computational modelling of solidification phenomena

### Ph.D. (2004 – 2009)

Computational Physics; School of Nano Science, Institute for Studies in Theoretical Physics and Mathematics (IPM), Tehran, Iran

Dissertation Title: Computational modelling of the stochastic dynamics of kinesin biomolecular motors.



## RESEARCH INTERESTS

- Complexity,
- **Modeling** of Complex Systems,
- Dynamics on/of **Complex Networks** (such as Brain and Social Networks),
- **Computational** Biology,
- Computational Social Science



## PUBLICATIONS

Click link bellow for complete publications:

[https://scholar.google.com/citations?hl=en&user=AqOdi\\_wAAAAJ&view\\_op=list\\_works&sortby=pubdate](https://scholar.google.com/citations?hl=en&user=AqOdi_wAAAAJ&view_op=list_works&sortby=pubdate)

Google h-index: 14



## SELECTED PUBLICATIONS

Brownian dynamics simulation of nucleocytoplasmic transport: a coarse-grained model for the functional state of the nuclear pore complex

R Moussavi-Baygi, Y Jamali, R Karimi, MRK Mofrad  
PLoS Comput Biol 7 (6), e1002049, 2011



## SELECTED PUBLICATIONS

A sub-cellular viscoelastic model for cell population mechanics  
Y Jamali, M Azimi, MRK Mofrad  
PLoS One 5 (8), e12097, 2010

Biophysical coarse-grained modeling provides insights into transport through the nuclear pore complex  
R Moussavi-Baygi, Y Jamali, R Karimi, MRK Mofrad  
Biophysical journal 100 (6), 1410-1419, 2011

The concepts and applications of fractional order differential calculus in modeling of viscoelastic systems: A primer  
MA Matlob, Y Jamali  
Critical Reviews™ in Biomedical Engineering 47 (4), 2019

An agent based model of integrin clustering: Exploring the role of ligand clustering, integrin homo-oligomerization, integrin–ligand affinity, membrane crowdedness and ligand mobility  
Y Jamali, T Jamali, MRK Mofrad  
Journal of Computational Physics 244, 264-278, 2013

Accounting for diffusion in agent based models of reaction-diffusion systems with application to cytoskeletal diffusion  
M Azimi, Y Jamali, MRK Mofrad  
PLoS One 6 (9), e25306, 2011

The effect of local bending on gating of MscL using a representative volume element and finite element simulation  
O Bavi, M Vossoughi, R Naghdabadi, Y Jamali  
Channels 8 (4), 344-349, 2014

Modeling ion permeation through a bacterial voltage-gated calcium channel Ca V Ab using molecular dynamics simulations  
J Adiban, Y Jamali, H Rafii-Tabar  
Molecular BioSystems 13 (1), 208-214, 2017

A proposed mechanism for mind-brain interaction using extended Bohmian quantum mechanics in Avicenna's monotheistic perspective  
M Jamali, M Golshani, Y Jamali  
Heliyon 5 (7), e02130, 2019

On the influence of structural connectivity on the correlation patterns and network synchronization  
PS Nazemi, Y Jamali  
Frontiers in computational neuroscience 12, 105, 2019

An investigation into colour combination in paintings via graph theory  
SJ Vangah, Y Jamali, M Jamali  
Journal of Complex Networks 8 (4), cnz034, 2020

A Computational Approach to Homans Social Exchange Theory  
T Enayat, MM Ardebili, RR Kivi, B Amjadi, Y Jamali  
arXiv preprint arXiv:2007.14953, 2020



## INNOVATIONS & INVENTIONS

- National patent on Antibacterial Nano-composite Granule
- National patent on Antimicrobial Zinc-Oxide Nano-composite Film
- National patent on Antimicrobial Silver Nano-composite Film
- Developing National Computational Package based on ABM for coronavirus pandemic



## TEACHING EXPERIENCES

- Stochastic Modeling in Biolog
- Dynamics on Complex Networks
- Mathematical Biology
- Bioelectricity
- Computational Nano Science
- Computational physics
- Computational plasma physics
- Scientific Programming (Java)
- Scientific Programming (Python)



## ADVISING EXPERIENCES

Mentor of seven PhD students in the Computational Biology and Computational Nano Science

Mentor of twenty MSc students in the BioMath, Bioinformatics and Computational Biology.



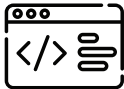
## LABORATORY SKILLS

- Brain Stimulation; including electrode implantation in the fish and insects neural tissue, signalling and control.
- AVR programming.



## COMPUTATIONAL SKILLS

- Cellular Automata Method
- Agent Based Modeling
- MC (Monte Carlo)
- MD (Molecular Dynamics)
- LD (Langevin Dynamics)
- Coarse Grain Modeling
- Heuristic Optimization Techniques



## PROGRAMMING SKILLS

- Fortran
- Python
- JAVA
- TCL
- MATLAB
- C/C++



## GRAPHICAL SKILLS

- Adobe Photoshop ,
- Adobe Illustration,
- Maxon Cinema 4D Studio

Portfolio sample: cover image of biophysical journal  
100(6) link: <https://goo.gl/ZcwUR3>