

# Yazdan Asgari

Bioinformatician

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## WORK EXPERIENCE

- Apr 2021 - Now: Postdoctoral Fellowship
  - Équipe Exposome et Hérité, CESP, Gustave Roussy, Villejuif, France
  - Supervisor: Dr. T. Truong
- Jan 2017 - Jan 2021: Assistant Professor
  - Department of Medical Biotechnology
  - School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
- Aug 2015 - Dec 2016: Postdoctoral Fellowship
  - Institute for Research in Fundamental Sciences-IPM, Tehran, Iran
  - Supervisor: Dr. M. Sadeghi

## EDUCATION

- Visiting Researcher, Institute of Plant Genetics and Crop Plant Research-IPK, Gatersleben, Germany, 2011  
Supervisor: Prof. Falk Schreiber
- Ph.D.  
Bioinformatics, University of Tehran (Joint Project with Martin Luther University of Halle-Wittenberg, Germany), Tehran, Iran, 2014  
Thesis Title: Modeling Cancer as a Metabolic Disease  
Supervisors: Dr. A. Masoudi-Nejad, Prof. Falk Schreiber
- Visiting Researcher, University of Lethbridge, Lethbridge-AB, Canada, 2008  
Supervisor: Prof. Marc Roussel
- M.Sc.  
Physical Chemistry, Khaje Nasir Toosi University of Technology, Tehran, Iran, 2004  
Thesis Title: Cellular Automata and Reaction-Diffusion Systems  
Supervisor: M. Ghaemi, M.G. Mahjani

- B.Sc.  
Applied Chemistry, University of Kashan, Kashan, Iran, 2002

## PUBLICATIONS

### First/co-first Author

1. E. Lucotte\*, **Y. Asgari**, P.E. Sugier, M. Karimi, C. Domenighetti, F. Lesueur, A. Boland-Augé, E. Ostroumova, F. de Vathaire, M. Zidane, P. Guénel, J.F. Deleuze, M.C. Boutron-Ruault, G. Severi, B. Liquet, T. Truong, Investigation of common genetic risk factors between thyroid disorders and breast cancer, *Human Molecular Genetics*, (Accepted), **2023**
2. **Y. Asgari**, P.E. Sugier, T. Baghfalaki, E. Lucotte, M. Karimi, M. Sedki, A. Ngo, B. Liquet, T. Truong, GCPBayes Pipeline: a tool for exploring pleiotropy at gene-level, *NAR Genomics and Bioinformatics*, 5(3), lqad065, **2023**
3. **Y. Asgari**, P. Khosravi, Flux Variability Analysis reveals a tragedy of commons in cancer cells, *SN Applied Sciences*, 2, 1966, **2020**
4. **Y. Asgari**, J. Ik-Tsen Heng, N. Lovell, A. Forrest, H. Alinejad-Rokny, Evidence for enhancer noncoding RNAs (enhancer-ncRNAs) with gene regulatory functions relevant to neurodevelopmental disorders, <https://www.biorxiv.org/content/10.1101/2020.05.16.087395v1>, **2020**
5. **Y. Asgari**, P. Khosravi, Z. Zabihinpour, M. Habibi, Exploring candidate biomarkers for lung and prostate cancers using gene expression and flux variability analysis, *Integrative Biology*, 10, 113, 113-120, **2018**
6. **Y. Asgari**, Z. Zabihinpour, A. Masoudi-Nejad, SCAN-Toolbox: Structural COBRA Add-oN (SCAN) for Analysing Large Metabolic Networks, *Current Bioinformatics*, 13(1), 100-107, **2018**
7. **Y. Asgari**, Z. Zabihinpour, A. Salehzadeh-Yazdi, F. Schreiber, A. Masoudi-Nejad, Alterations in cancer cells metabolism: the Warburg effect and metabolic adaptation, *Genomics*, 105, 275-281, **2015**
8. **Y. Asgari**, A. Salehzadeh-Yazdi, F. Schreiber, A. Masoudi-Nejad, Controllability in Cancer Metabolic Networks According to Drug Targets as Driver Nodes, *PloS One*, 8 (11), e79397, **2013**
9. **Y. Asgari**, M. Ghaemi, M.G. Mahjani, Cellular Automata Simulation of a Bistable Reaction-Diffusion System: Microscopic and Macroscopic Approaches, *Iran. J. Chem. & Chem. Eng*, 30(1), 143-150, **2011**
10. **Y. Asgari**, M. Ghaemi, M.G. Mahjani, Pattern Formation of the FitzHugh-Nagumo Model: Cellular Automata Approach, *Iran. J. Chem. & Chem. Eng*, 30(1), 135-142, **2011**
11. **Y. Asgari**, M. Ghaemi, Obtaining the critical point and shift exponent for the anisotropic two-layer Ising and Potts models: Cellular Automata approach, *Physica A*, 387(8-9), 1937-1946, **2008**
12. **Y. Asgari**, M. Ghaemi, Constructing the critical curve for the two-layer Potts models using Cellular Automata, *J. Theor. Comp. Chem*, 5(2), 141-150, **2006**
13. **Y. Asgari**, M. Ghaemi, M.G. Mahjani, Calculation of the critical point for the two-layer Ising and Potts models using Cellular Automata, *Lect. Notes in Comp. Sci*, 3305, 709-718, **2004**

### Main Supervisor of the study / Last Author

1. S. Nekoeian, S. Ferdowsian, **Y. Asgari**, Z. Azizi, Identification of Hub Genes Associated with Resistance to Prednisolone in Acute Lymphoblastic Leukemia Based on Weighted Gene Co-expression Network Analysis, *Molecular Biotechnology*, 1-10, **2023**
2. M.N.K. Masjedi, **Y. Asgari**, E. Sadroddiny, Differential expression analysis in epithelial ovarian cancer using functional genomics and integrated bioinformatics approaches, *Informatics in Medicine Unlocked*, 101172, **2023**
3. S. Nekoeian, T. Rostami, A. Norouzy, S. Hussein, G. Tavoosidana, B. Chahardouli, S. Rostami, **Y. Asgari**, Z. Azizi, Identification of lncRNAs associated with the progression of acute lymphoblastic leukemia using a competing endogenous RNAs network, *Oncology Research*, 30 (6), **2022**

4. M. Rastegarpanah, K. Azadmanesh, B. Negahdari, **Y. Asgari**, M. Mazloomi, Screening of candidate genes associated with high titer production of oncolytic measles virus based on systems biology approach, *Virus Genes*, 58 (4), 270-283, **2022**
5. B. Hassani, H. Mollanoori, F. Pouresmaeili, **Y. Asgari**, S. Ghafouri-Fard, Constructing mRNA, miRNA, circRNA and lncRNA regulatory network by analysis of microarray data in breast cancer, *Gene Reports*, 26, 101510, **2022**
6. M. Ghaemi, M. Shojafar, Z. Zabihinpour, **Y. Asgari**, On the possibility of oscillating in the Ebola virus dynamics and investigating the effect of the lifetime of T lymphocytes, *Plos one*, 17 (3), e0265065, **2022**
7. N. Beheshtizadeh, **Y. Asgari**, N. Nasiri, A. Farzin, M. Ghorbani, N. Lotfibakhshaiesh, M. Azami, A network analysis of angiogenesis/osteogenesis-related growth factors in bone tissue engineering based on in-vitro and in-vivo data: a systems biology approach, *Tissue and Cell*, 72, 101553, **2021**
8. B. Hassani, M. Taheri, **Y. Asgari**, A. Zekri, A. Sattari, S. Ghafouri-Fard, F. Pouresmaeili, Expression analysis of long non-coding RNAs related with FOXM1, GATA3, FOXA1 and ESR1 in breast tissues, *Frontiers in Oncology*, 11, 671418, **2021**
9. S. Khodaei, **Y. Asgari**, M. Totochi, M.H. Karimi-Jafari, iMM1860: A new reconstruction of mouse genome-scale metabolic model, *Scientific Reports*, 10(1), 1-13, **2020**
10. M. Gholizadeh, J. Fayazi, **Y. Asgari**, H. Zali, L. Kaderali, Reconstruction and Analysis of Cattle Metabolic Networks in Normal and Acidosis Rumen Tissue, *Animals*, 10(3), 469, **2020**
11. J. Fayazi, M. Gholizadeh, H. Zali, **Y. Asgari**, Transcriptomic Changes in the Rumen Epithelium in Beef Cattle after Induction of Acidosis, *Archives of Razi Institute*, 75(1), 109-121, **2020**
12. F. Nikmanesh, S. Sarhadi, M. Dadashpour, **Y. Asgari**, N. Zarghami, Omics integration analysis unravel the landscape of driving mechanisms of colorectal cancer, *Asian Pacific Journal of Cancer Prevention*, 21 (12), 3539, **2020**
13. H. Rakhsh-Khorshid, H. Samimi, S. Torabi, S.M. Sajjadi-Jazi, H. Samadi, F. Ghafouri, **Y. Asgari**, V. Haghpanah, Network analysis reveals essential proteins that regulate sodium-iodide symporter expression in anaplastic thyroid carcinoma, *Scientific Reports*, 10, 21440, **2020**
14. M. Ghorbani, F. Pourjafar, M. Saffari, **Y. Asgari**, Paclitaxel resistance resulted in a stem-like state in triple-negative breast cancer: A systems biology approach, *Meta Gene*, 26, 100800, **2020**
15. M. Gholizadeh, J. Fayazi, **Y. Asgari**, H. Zali, Reconstruction and topological analysis of metabolic network in the bovine rumen tissue, *Veterinary Researches & Biological Products*, 125, 106-117, **2019, (in Persian)**
16. M. Taheri, K. Nouri, **Y. Asgari**, Z. Zabihinpour, M. Sadeghi, The Significance of Noise in the Evolution of Negative and Positive Cooperativity in Protein Complexes, *MATCH Communications in Mathematical and in Computer Chemistry*, 81(1), 177-192, **2019**
17. G. Shafiee, **Y. Asgari**, A. Soltani, B. Larijani, R. Heshmat, Identification of candidate genes and proteins in aging skeletal muscle (sarcopenia) using gene expression and structural analysis, *PeerJ*, 5(6), e5239, **2018**
18. S. Ghorbani, M. Tahmoorepur, A. Masoudi-Nejad, M. Nasiri, **Y. Asgari**, Reconstruction and topology analysis of metabolic network involved in Bos Taurus milk production, *Animal Sciences Journal*, 110, 167-180, **2016, (in Persian)**
19. A. Masoudi-Nejad, **Y. Asgari**, Metabolic Cancer Biology: Structural-based analysis of cancer as a metabolic disease, new sights and opportunities for disease treatment, *Seminars in Cancer Biology*, 30, 21-29, **2015**
20. S. Ghorbani, M. Tahmoorepur, A. Masoudi-Nejad, M. Nasiri, **Y. Asgari**, Analysis of the enzyme network involved in cattle milk production using graph theory, *Molecular Biology Research Communications*, 4(2), 93-103, **2015**
21. M. Jalili, A. Salehzadeh-Yazdi, **Y. Asgari**, S. Arab, M. Yaghmaie, A. Ghavamzadeh, and K. Alimoghaddam, CentiServer: A Comprehensive Resource, Web-Based Application and R Package for Centrality Analysis, *Plos One*, 10(11), e0143111, **2015**
22. M. Ghaemi, Z. Zabihinpour, **Y. Asgari**, Computer simulation study of the Levy flight process, *Physica A*, 388, 1509-1514, **2009**
23. M. Ghaemi, N. Rezaei-Ghaleh, **Y. Asgari**, Lattice gas automata simulation of 2-D site percolation diffusion: Configuration dependence of the theoretically-expected crossover of diffusion regime, *Lect. Notes in Comp. Sci*, 5191, 274-281, **2008**

## Other

1. T. Baghfalaki, P.E. Sugier, **Y. Asgari**, T. Truong, B.Liquet, GCPBayes: An R package for studying Cross-Phenotype Genetic Associations with Group-level Bayesian Meta-Analysis, *R Journal*, 15(1), 122-141, **2023**
2. Z. Yousefi-Najafabadi, Z. Mehmandoustli, **Y. Asgari**, S. Kaboli, R. Falak, G.A. Kardar, Reversing T Cell Exhaustion by Converting Membrane PD-1 to Its Soluble form in Jurkat Cells; Applying The CRISPR/Cas9 Exon Skipping Strategy, *Cell Journal (Yakhteh)*, 25, 9, 633-644, **2023**
3. S. Mohammadi, M. Zahmatkesh, **Y. Asgari**, S. Aminyavari, G. Hassanzadeh, Evaluation of hippocampal arylalkylamine N-acetyltransferase activity in amyloid  $\beta$  neurotoxicity, *Journal of Molecular Endocrinology*, 71, 2, e220161, **2023**
4. S.P. Rostami, N.M. Dehkordi, **Y. Asgari**, M.R. Bolouri, N. Shayanfar, R. Falak, G.A. Kardar, Competitive Effect of Overexpressed C-terminal of Snail-1 (CSnail) in Control of the Growth and Metastasis of Melanoma Cells, *Recent patents on anti-cancer drug discovery*, (Ahead of Print), DOI: 10.2174/1574892818666230330105016, **2023**
5. S. Ahmadi, H. Teimori, M.H. Modarressi, **Y. Asgari**, M. Saffari, The effect of autophagy-related MicroRNAs on FIP200, ATG13 and HIF1A expression levels in breast cancer patients, *Human Gene*, 201145, **2023**
6. A. Etemadi, M.H. Karimi-Jafari, B. Negahdari, **Y. Asgari**, M.R. Khorramizadeh, F. Mohammadian, M. Mazloomi, Design of a dual-function agent by fusing a designed anti-VEGF-A binder and CPG-2 enzyme, *Journal of Biomolecular Structure and Dynamics*, 1-8, **2022**
7. A. Etemadi, H.R. Moradi, F. Mohammadian, M.H. Karimi-Jafari, B. Negahdari, **Y. Asgari**, M. Mazloomi, Binder design for targeting SARS-CoV-2 spike protein: An in-silico perspective, *Gene Reports*, 26, 101452, **2022**
8. R. Heidari, M. Akbariomi, **Y. Asgari**, D. Ebrahimi, H. Alinejad-Rokny, A systematic review of long non-coding RNAs with a potential role in Breast Cancer, *Mutation Research/Reviews in Mutation Research*, 787, 108375, **2021**
9. A. Nikkholgh, S.A. Ebrahimi, E. Bakhshi, M.R. Zarrindast, **Y. Asgari**, A. Torkaman-Boutorabi, New Biomarkers Based on Smoking-Related Phenotypes for Smoking Cessation Outcomes of Nicotine Replacement Therapy: A Prospective Study, *Basic and Clinical Neuroscience*, 12(5), 639-650, **2021**
10. S. Aghaei Gharehbolagh, L. Mafakher, Z. Salehi, **Y. Asgari**, S.J. Hashemi, S. Mahmoudi, M. Nasimi, S. Rezaie, Unveiling the structure of GPI-anchored protein of *Malassezia globosa* and its pathogenic role in pityriasis versicolor, *Journal of Molecular Modeling*, 27, 1-12, **2021**
11. S. Aghaei Gharehbolagh, S. Mahmoudi, **Y. Asgari**, H. Rahimi, S. Agha Kuchak Afshari, F. Noorbakhsh, S. Rezaie, Thioredoxin is a potential pathogenesis attribute of *Malassezia globosa* and *Malassezia sympodialis* in pityriasis versicolor, *Gene Reports*, 17, 100468, **2019**
12. S. Aghaei Gharehbolagh, P. Kordbacheh, S.J. Hashemi, R. Daie Ghazvini, **Y. Asgari**, S. Agha Kuchak Afshari, S.M. Seyedmousavi, S. Rezaie, MGL\_3741 gene contributes to pathogenicity of *Malassezia globosa* in pityriasis versicolor, *Mycoses*, 61(12), 938-944, **2018**
13. A. Salehzadeh-Yazdi, **Y. Asgari**, A.A. Sabouri, A. Masoudi-Nejad, Computational analysis of reciprocal association of metabolism and epigenetics in the budding yeast: a genome-scale metabolic model (GSMM) approach, *PloS One*, 9(11), e111686, **2014**
14. P. Khosravi, V. H. Gazestani, **Y. Asgari**, B. Law, M. Sadeghi, B. Goliaei, Network-based approach reveals Y chromosome influences prostate cancer susceptibility, *Computers in Biology and Medicine*, 54, 24-31, **2014**

## BOOK CHAPTER

A. Masoudi-Nejad, A. Salehzadeh-Yazdi, S. Akbari, **Y. Asgari**, Integration of Metabolic Knowledge for Genome-scale Metabolic Reconstruction, Invited chapter in "*Biological Knowledge Discovery Handbook: Preprocessing, Mining and Post processing of Biological Data*", English, Publisher: John Wiley & Sons, Inc, **2014**

## CONFERENCES

### Talks

1. A pipeline for exploring gene-level pleiotropy of GWAS data, *Conference on Computational Intelligence Methods for Bioinformatics & Biostatistics (CIBB 2023)*, Padova, Italy, 6-8 Sep, **2023**
2. Developing a new pipeline for exploring pleiotropy of GWAS data at gene-level, *Intelligent Systems for Molecular Biology and European Conference on Computational Biology (ISMB/ECCB 2023)*, Lyon, France, 23-27 Jul, **2023**
3. GCPBayes Pipeline to explore pleiotropy at gene-level, *Annual Meeting Proceedings Talk at GOLD Meeting*, Paris, France, **2022**
4. MATLAB Programming, *1<sup>st</sup> Summer School in Bioinformatics: Gene Expression Analysis*, Institute for Research in Fundamental Sciences, Tehran, Iran, **2015**
5. Metabolomic Applications as Biomarkers in Oncology, *Iranian Cancer Genetics Congress*, Shariati Hospital, Tehran, Iran, **2013**
6. Application of Cellular Automata in pattern formation, *1<sup>st</sup> Iranian Bioinformatics Conference*, Tehran, Iran, **2003**

### Poster

1. Exploring common genetic risk factors between breast cancer and thyroid cancer using GCPBayes Pipeline, *International symposium on Human Genomics (ISHG 2023)*, Paris, France, 20-22 Sep, **2023**
2. Using GCPBayes to explore pleiotropy at gene-level between breast and ovarian cancers based on GWAS summary statistics data, *European Human Genetics Conference (ESHG 2022)*, Vienna, Austria, 11-14 Jun, **2022**
3. Corresponding states theory and thermodynamic properties of alkali metals, *9<sup>th</sup> Iranian Physical Chemistry Seminar*, Rasht, Zibakenar, Iran, **2006**
4. Calculation of the critical point for the two-layer Ising model using Cellular Automata, *7<sup>th</sup> Iranian Physical Chemistry Seminar*, Isfahan University of Technology, Isfahan, Iran, **2005**
5. Simulation of FitzHugh-Nagumo models as a reaction-diffusion system using Cellular Automata, *7<sup>th</sup> Iranian Physical Chemistry Seminar*, Isfahan University of Technology, Isfahan, Iran, **2005**
6. Cellular Automata and reaction-diffusion systems, *14<sup>th</sup> Iranian Chemistry and Chemical Engineering Congress*, Tehran, Iran, **2004**

## TEACHING EXPERIENCES

- Bioinformatics (for M.Sc. and Ph.D. students), Tehran University of Medical Sciences, Tehran, Iran, 2016-2021
- Medical Informatics (for M.Sc. and Ph.D. students), Tehran University of Medical Sciences, Tehran, Iran, 2016-2021
- Applied Statistics (for M.Sc. and Ph.D. students), Tehran University of Medical Sciences, Tehran, Iran, 2016-2021
- Protein Engineering (for Ph.D. students), Tehran University of Medical Sciences, Tehran, Iran, 2016-2021
- Computational and Systems Biology (for Ph.D. students), Tehran University of Medical Sciences, Tehran, Iran, 2016-2021
- Analysis of Metabolic Networks (for Ph.D. students), University of Tehran, Tehran, Iran, Spring Semester - 2015/2016
- Research Method (for M.Sc. and Ph.D. students), Tehran University of Medical Sciences, Tehran, Iran, 2016-2021

## PAPER REVIEWER

Aging, Avicenna Journal of Medical Biotechnology, Bioinformatics-Oxford, BioMed Research International, Bioprocess and Biosystems Engineering, BMC Systems Biology, Cancer Management and Research, Computational and Structural Biotechnology, Future Oncology, IEEE Transactions on Neural Networks and Learning Systems, International Journal of Hematology-Oncology and Stem Cell Research, Iranian Journal of Biotechnology, Iranian Journal of Cancer Prevention, Journal of Torbat Heydariyeh University of Medical Sciences, Oncology Letters, Oncotarget, OncoTargets and Therapy, Oxidative Medicine and Cellular Longevity, Physica A

## GRANTS & SCHOLARSHIPS (PI)

Year	Description	Agency
2020	Exploring eRNAs involved in psoriasis disease	National Institute of Medical Research Development
2019	Study of new MicroRNAs as biomarkers in response to Rituximab for Multiple Sclerosis patients using Systems Biology approach	Tehran University of Medical Science
2019	Study of cell death induction by disrupting cell-cycle genes investigation in lapatinib-resistant BT474 cell line	Tehran University of Medical Science
2018	Reconstruction of metabolic network for rumen tissue in <i>bus taurus</i> using RNAseq data	Tehran University of Medical Science
2018	Identification of MicroRNA biomarkers for pancreatic cancer diagnosis using Systems Biology approach	Tehran University of Medical Science
2017-2018	Stochastic Simulation of Gene Expression with Delay-Differential Equations	Institute for Research in Fundamental Sciences-IPM, Tehran

## MANAGEMENT EXPERIENCES

- 2018-2021, CEO at Iranian Bioinformatics Society (IBIS), Tehran, Iran
- What is Life, School of Biological Sciences, Institute for Research in Fundamental Sciences, 2016, Organizer

## THESIS SUPERVISOR/CO-SUPERVISOR/ADVISOR

### M.Sc.

- In France



- Master 2 Bioinformatics – Donna-Lee BOWIE, *Network Enrichment Analysis*, Bordeaux University, (2022)
- Master 1 Bioinformatics – Thomas Clerc, *LocusZoom adaptation Project*, Ecole d'ingénieurs du numérique, (2021)
- **In Iran**
  - M. Ahmadi, *Comparison of MIN6 cell line signaling networks with murine pancreatic beta cells for optimally usage of MIN6 cell line in diabetes research*, (2023)
  - F. Pourjafar, *Study of cell death induction by double strand breakage pathways investigation in lapatinib-resistant BT474 cell line*, (2022)
  - E. Firouzi Majd, *The effect of lapatinib resistancy on expression of genes involved in the cell cycle mitosis phase in bt474 cell line*, (2021)
  - M. Ghorbani, *A rational design for combination therapy of lapatinib resistance luminal B breast cancer cells by using of systems biology approach*, (2021)
  - Y. Abaukaka, *Engineering of CHO cell line for the enhancement of therapeutic recombinant protein production*, (2021)
  - A. Amirfallah, *Exploring molecular mechanism of three proteins involve in cancer*, (2021)
  - S. Ghods, *Network-based pharmacology study of ginger in dysmenorrhea disease and its effect on inflammatory enzymes*, (2020)
  - M. Abdi, *Identification of MicroRNA biomarkers for pancreatic cancer diagnosis using Systems Biology approach*, (2020)
  - H. Fatima, *Using synthetic antibody library for obtaining Single Chain Anti-Ige by Phage display technology*, (2020)
  - M. Yazdani, *Reconstruction and analysis of genome-scale metabolic model of *Penicillium compactum**, (2020)
  - S.R. Mohammadi, *Cloning and expression of *Aspergillus niger* prolyl endopeptidase (AN-PEP) in *E. coli**, (2019)
  - F. Nikmanesh, *Comparison of biochemical pathways of colorectal cancer patients and healthy controls using a systems biology approach* (2018)

#### **Ph.D.**

- **In Iran**
  - S. Nekouian, *Investigating the expression of non-coding RNA to predict relapse in patients with acute lymphoblastic leukemia*, (2023)
  - M. Rastegarpanah, *Engineering of MRC-5 Cell line to Optimize production of measles virus with stable overexpression of Sphingosine Kinase 1*, (2022)
  - B. Hasani, *Construction and analysis of mRNA, miRNA, lncRNA, and TF regulatory networks in order to reveal the key genes associated with breast cancer*, (2021)
  - S. Khodaei, *Metabolic Explanations of Cells on Waddington Landscape*, (2020)
  - M. Gholizadeh, *Reconstruction of metabolic network for rumen tissue in *bus taurus** (2019)
  - M. Jalili, *Cancer Systems Biology and Genotype-Phenotype Analysis of Reconstructed Network with Diseasome and Biological Approaches in Medicine* (2016)

## RESEARCH INTERESTS

Bioinformatics, Systems Biology, GWAS Analyses, Pipeline Development, Metabolic Networks (Genome-Scale Models, Structural Analysis, Constraint-based Modeling), Non-coding RNAs

Complex Systems, Reaction-Diffusion Systems, Cellular Automata (CA), Random Walks - Anomalous Diffusion, Nonlinear Dynamics

Philosophy of Science

## TECHNICAL SKILLS

Programming (Advanced): R, R-Shiny, MATLAB

Programming (Intermediated): Python, C, Bash Scripting

Docker

Linux and MAC OS

## LANGUAGE

English (good), French (débutant), Farsi (native)