ADRIAN SALAVATY

Melbourne, Australia
www.ASalavaty.com
github.com/asalavaty

SKILLS

- **Bioinformatics:** Bulk and single-cell NGS data analysis including genomics (WGS/WES), epigenomics (Chip-seq), and Transcriptomics (RNA-seq and Microarray); Proteomic (Mass Spec.) data analysis; Multi-omics (Integratomic) data analysis
- **Systems Biology:** Pathway and gene-set data analysis; Single-layer (*e.g.*, co-expression, PPI, genomic co-deleteriousness, and metabolomic co-abundance) and multi-layer (multi-omics) network reconstruction, analysis, and visualization; Node centrality and influence evaluation, Graph-based model development; Node centrality algorithm development and optimization
- **Programming languages and skills:** R (tidy R programming), R package development, Shiny app development, Python, Python package development, Linux and command-line-based high performance computing (HPC)
- **Machine learning (ML):** Supervised and unsupervised ML-based problem solving such as clustering, classification, regression, and dimension reduction; Experienced in classical (*e.g.*, SVM and Random Forest) and modern (Neural Network-based) ML models; Feature selection/extraction
- **Statistics:** Biostatistics, Data mining, Meta-analysis
- **Data visualization:** R-based (ggplot2, etc.) and Python-based (matplotlib, seaborn, plotnine, etc.) advanced data visualization
- **Scientific writing:** Reference manager (EndNote, Mendeley, Citavi)
- **Computer skills:** MS Office, Adobe Photoshop, Adobe Illustrator

CERTIFICATES

- Data Science and Machine Learning: Making Data-Driven Decisions
  MIT Institute for Data, Systems, and Society (IDSS) Sep 2023
- Python Essential Training
  LinkedIn Learning Feb 2022
- Learning Python
  LinkedIn Learning May 2021
- Application of NGS in Cancer Diagnosis and Management
  Isfahan University of Medical Sciences, Department of Genetics and Molecular Biology

OMICS™ October 2015
BGI Tech Isfahan, Iran

- Bioinformatics Workshop June 2014
  Shahid Chamran University of Ahvaz Ahvaz, Iran

PROGRAMMING PROJECTS

Shiny Apps

- AutoClone: Calculation of distances (clonality) based on color features
  URL: https://autoclone.erc.monash.edu/
  Monash University 2021

- Influential Software Package web portal
  URL: https://influential.erc.monash.edu/
  ExIR Shiny app
  IVI Shiny app
  Monash University 2021

Python-based Packages and Models

- influential: Identification and Classification of the Most Influential Nodes 2023
  Python package, released on PyPI
  PyPI link: https://pypi.org/project/influential/
  GitHub repo: https://github.com/asalavaty/python-influential
  Experimental-data-based Integrative Ranking (ExIR)
  Integrated Value of Influence (IVI)
  SIR model-based Influence Ranking (SIRIR)

R-based Packages and Models

- influential: Identification and Classification of the Most Influential Nodes
  R package, released on CRAN
  CRAN link: https://cran.r-project.org/package=influential
  Website: https://asalavaty.github.io/influential/
  GitHub repo: https://github.com/asalavaty/influential
  Experimental-data-based Integrative Ranking (ExIR)
  Integrated Value of Influence (IVI)
  SIR model-based Influence Ranking (SIRIR)
  Monash University 2020-2021

EDUCATION

Ph.D. in Bioinformatics 2019-2023

Australian Regenerative Medicine Institute, Monash University Melb, AUS

PhD thesis: Identification of commonalities in clonal selection during normal and cancer tissue development using bioinformatics and systems biology techniques

Skills: Bioinformatics (bulk and scRNA-Seq), Systems Biology (network analysis and network-based model development), R and Python Programming, Shiny App, Machine Learning, HPC

Master of Science in Biology-Biochemistry 2016-2018

University of Kashan Kashan, Iran

Master thesis: Computational functional analysis and annotation of lung adenocarcinoma prognostic long non-coding RNAs

GPA: 3.82/4

Skills: Bioinformatics (microarray and RNA-Seq), Systems Biology (network analysis, pathway and gene-set data analysis), R Programming, HPC, Data Visualization

Bachelor of Science in Genetics 2011-2015

Shahid Chamran University of Ahvaz Ahvaz, Iran

GPA: 3.72/4

Skills: Bioinformatics (microarray, meta-analysis, genomics), Systems Biology (pathway and gene-set data analysis), R Programming, Data Visualization

PROFESSIONAL EXPERIENCES

Affiliations

- Senior Bioinformatic Scientist 2023-present
  oNKo-innate, Melbourne, Australia

  Skills: Bioinformatics (RNA-Seq), Systems Biology (network analysis and network-based model development), R Programming, Drug-target compound screening analysis, Pipeline development, Text-mining, Machine Learning

- Scientific Advisor, Arta Bioanalytics 2023- present
- Post-doctoral Research Officer (Bioinformatics and Systems Biology Scientist)
  Children's Cancer Institute Australia 2022-2023

  Skills: Bioinformatics (Genomics and RNA-Seq), Systems Biology (network analysis and network-based model development, protein-protein interactions), R Programming, Text-mining, Machine Learning

- Scientific Advisor, ANUNA AI (Previously MEDDA) 2021-2023
- The Systems Biology Institute Australia 2019-present
- Professional Member of Cancer Epigenetics Society (ID Number: 1537) 2018-present

- Research fellow (Bioinformatician), Al-Zahra Medical Genetics Laboratory, Isfahan, Isfahan, Iran 2015-2018

Editorial and Reviewer

- Reviewer, Nature - Scientific Reports 2023
- Reviewer, BMC Bioinformatics 2023
- Reviewer, Frontiers in Genetics 2020
- Reviewer, Journal of Rare Diseases Research & Treatment 2017
- Reviewer, Molecular Neurobiology 2017
- Editor, AMOR: Advances in Modern Oncology Research 2015- present
- Reviewer, MOJPB: MedCrave Online Journal of Proteomics & Bioinformatics 2014-2016

Teaching Experiences

- TA of medical biotechnology; genomics, proteomics and bioinformatics (BRM5012) 2021
  Monash University Melbourne, Australia
- TA of Introduction to Bioinformatics (BMS5021) 2021
  Monash University Melbourne, Australia
- TA of Genomics and its applications (GEN3040) 2020-2021
  Monash University Melbourne, Australia
- Cancer Systems Biology Workshop 2018
  Tehran University of Medical Sciences Tehran, Iran

AWARDS AND HONORS

- Awardee of Postgraduate Publication Award 2022
  Monash University top 30 PhD students according to publication records/prospects
- Awardee of the Best Oral Talk Based on People's Choice
  COMBINE-ABACBS Student Symposium 2021
- Awardee of the Best Student Oral Talk
  Victorian Cancer Bioinformatics Symposium 2021
- Awardee of Australia's Global Talent Permanent Residency Visa
  Data Science sector 2020
- Ph.D. scholarship from Monash University, (awarded and taken up) 2018

GRANTS

Monash Data Futures Institute Seed Grants - AI and Data Science for Monash Global Challenges.
Finding the right targets: most influential nodes in complex networks
Chief investigators: Ramialison, Currie, Dowe August 2021
Adrian Salavaty is a named investigator in this grant .

PUBLICATIONS, PRESENTATIONS, AND ABSTRACTS

Publications (Google Scholar Citations = 606)

- Rudraraju R., Gartner M. J., Neil J. A., Stout E. S., Chen J., Needham E. J., See M., Mackenzie-Kludas C., Lee L. Y. Y., Wang M., Pointer H., Karavendzas K., Abu-Bonsrah D., Drew D., Sun Y. B. Y., Tan J. P., Sun G., **Salavaty A.**, *et al*. Parallel use of human stem cell lung and heart models provide insights for SARS-CoV-2 treatment. *Stem Cell Reports*. Jun 2023. PMID: 37315523
- Ruparelia A, **Salavaty A**, *et al*. The African killifish: A short-lived vertebrate model to study the biology of sarcopenia and longevity. *Aging Cell*. May 2023. PMID: 37183563
- **Salavaty A**, Esmaeel Azadian, Shalin H. Naik, Currie P. Clonal selection parallels between normal and cancer tissues. *Trends in Genetics*. February 2023. PMID: 36842901
- **Salavaty A**, Sara Alaei Shehni, Ramialison M, Currie P. Systematic molecular profiling of acute leukemia cancer stem cells allows identification of druggable targets. *Heliyon*. October 2022. PMID: 36281397
- **Salavaty A**, Ramialison M, Currie P. Integrated Value of Influence: An Integrative Method for the Identification of the Most Influential Nodes within Networks. *Patterns*. August 2020. PMID: 33205118
- **Salavaty A**, Rezvani Z, Najafi A. Survival analysis and functional annotation of long non-coding RNAs in lung adenocarcinoma. *Journal of Cellular and Molecular Medicine*. June 2019. PMID: 31211495
- **Salavaty A**, Movahedi Motlagh F, *et al*. Potential role of RAB6C-AS1 long noncoding RNA in different cancers. *Journal of Cellular Physiology*. August 2018. PMID: 30076712
- **Salavaty A**, Mohammadi N, Shahmoradi M, Naderi Soorki M. Bioinformatic analysis of circadian expression of oncogenes and tumor suppressor genes. *Bioinformatics and Biology Insights*. December 2017. PMID: 29276378
- Hajjari M, Sadeghi I, **Salavaty A**, Nasiri H, Birgani MT. Tissue Specific Expression Levels of Apoptosis Involved Genes Have Correlations with Codon and Amino Acid Usage. *Genomics & Informatics*. 14(4):234-240. December 2016. PMID: 28154517
- Hajjari M, **Salavaty A**, Crea F, Shin YK. The potential role of PHF6 as an oncogene: a genotranscriptomic/proteomic meta-analysis. *Tumor Biology*. 37:5317-5325. April 2016. PMID: 26561469
- **Salavaty A**. Carcinogenic effects of circadian disruption: an epigenetic viewpoint. *Chinese Journal of Cancer*. 34-38. June 2015. PMID: 26253128
- Hajjari M, **Salavaty A**. *HOTAIR*: an oncogenic long non-coding RNA in different cancers. *Cancer Biology & Medicine*. 12:1-9. March 2015. PMID: 25859406

Working Manuscripts

- **Salavaty A**, Douek AM, Thijs A, Kreuder F, Stamatis S, Steele JR, Hanchapola I, Shah AD, Schittenhelm RB, Ramialison M, Currie PD, Kaslin J. Systems-level investigation of mucopolysaccharidosis IIIA identifies deficient synaptic activity as a key driver of disease progression. *Preprinted in biorXive.* October 2022. DOI: 10.1101/2022.10.03.510585.

Presentations and Abstracts

- International Congress of Genetics (ICG) July 2023
  Melbourne Convention and Exhibition Centre (MCEC), Melbourne, Australia
  - Lightning Talk and poster presentation: **Salavaty A**, Pinese M. InCRIMP: a versatile computational model for the integrative analysis of multi-omics data.

- Australasian Genomic Technologies Association (AGTA) October/November 2022
  Sunshine Coast, Queensland, Australia
  - Poster presentation: **Salavaty A**, Pinese M. InCRIMP: a versatile computational model for the integrative analysis of multi-omics data.

- Oral presentation: **Salavaty A**, Ramialison M, Currie P. Identification, classification, and prioritization of most influential players in normal biological processes and diseases.
  - COMBINE-ABACBS Student Symposium November 2021
  - Victorian Cancer Bioinformatics Symposium October 2021
  - Oz Single Cell – PERTH September 2021
  - ANZSCDB August 2021

- ISMB/ECCB conference alliance July 2021
  Virtual
  - E-Poster and Short Talk: **Salavaty A**, Ramialison M, Currie P. Identification, classification, and prioritization of most influential players in normal biological processes and diseases.
  - E-Poster and Short Talk: **Salavaty A**, Ramialison M, Currie P. Identification of the most influential nodes involving all topological dimensions of a network.

- 5th International Conference on Proteomics & Bioinformatics September 2015
  OMICS Group, Valencia, Spain
  Abstract: **Salavaty A**, Hajjari M. Meta-analysis of RAG2 using a genotranscriptomic/proteomic approach: suggestive of its oncogenic role. *Journal of Proteomics & Bioinformatics*. 8:88. October 2015. DOI: 10.4172/0974-276X.S1.077

Books

- Co-translator of "Next Generation Sequencing Technologies in Medical Genetics" book
  ISBN: 978-600-356-502-9; National Bibliography Number (NBN): 4282468

Shahid Chamran University of Ahvaz 2015
Supervisor: Dr. Maryam Naderi Soorki

RESEARCH INTERESTS

- Bioinformatics and systems biology analysis of cancer initiation/progression causes
- Cancer stem cells
- Epigenetic basis of carcinogenesis
- Development of tools and packages for the identification, classification, prioritization, and visualization of biological molecules

TEACHING INTERESTS

- Graduate/undergraduate-level courses in Bioinformatics
- Graduate/undergraduate-level courses in Systems Biology
- Graduate/undergraduate-level courses in Molecular Oncology

APPENDICES

Awards and Honors

- Ph.D. scholarship from the Vancouver Prostate Center, University of British Columbia, (offered, but not taken up) 2018
- Ph.D. scholarship from Griffith University, (offered, but not taken up) 2018
- Ph.D. scholarship from the John Curtin School of Medical Research, Australian National University, (offered, but not taken up) 2018
- Ranked 2nd among all M.Sc. students in Biochemistry, University of Kashan 2018
- Ranked among the top 4% of participants in the National University Entrance Exam, Iran 2011

Publications, Presentations, and Abstracts

Publications

- **Salavaty A**, Rezvani Z, Najafi A. Long non-coding RNA LINC00987 may function as a tumor suppressor in lung adenocarcinoma. *F1000Research*. May 2018. DOI: 10.12688/f1000research.14785.1
- Sedghi M, Esfandiari E, Fazel-Najafabadi E, Salehi M, **Salavaty A**, Fattahpour S, Dehghani L, Nouri N, Mokarian F. Genomic rearrangement screening of the BRCA1 from seventy Iranian high-risk breast cancer families. *Journal of Research in Medical Sciences*. 21:95. November 2016. PMID: 28163741

Presentations

- Global Meet on Nanomedicine & Healthcare — November 2017
  New Orleans, USA
  E-Poster: **Salavaty A**, Shahmoradi M. Application of nanobioinformatics in drug design and delivery systems. *Biol Med Case Rep*. DOI: 10.13140/RG.2.2.24092.39043

Professional Experiences

Affiliations

- Member of Complex Biological Systems Alliance (CBSA), a global non-profit research consortium — 2015-present

Teaching Experiences

- Manuscript Writing Workshop — 2016
  University of Kashan — Kashan, Iran
- Secondary school-level courses in English language — 2015
  Ghalamchi Educational Foundation — Isfahan, Iran