

Mohammadamin Edrisi

U.S. Permanent Resident

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EDUCATION

Rice University, Houston, TX
Ph.D. in Computer Science
Expected May, 2024

Rice University, Houston, TX
M.Sc. in Computer Science
November, 2020

Sharif University of Technology, Tehran, Iran
B.S. in Electrical Engineering
January, 2017

PUBLICATIONS

MaCroDNA: Accurate integration of single-cell DNA and RNA data for a deeper understanding of tumor heterogeneity

Mohammadamin Edrisi, Xiru Huang, Huw A. Ogilvie, Luay Nakhleh
Accepted for publication in Nature Communications, 2023.
<https://doi.org/10.1101/2022.08.21.504709>

MoTERNN: Classifying the Mode of Cancer Evolution Using Recursive Neural Networks

Mohammadamin Edrisi, Huw A. Ogilvie, Meng Li, Luay Nakhleh
RECOMB International Workshop on Comparative Genomics, 232-247, 2023
https://doi.org/10.1007/978-3-031-36911-7_15

NestedBD: Bayesian Inference of Phylogenetic Trees From Single-Cell DNA Copy Number Profile Data Under a Birth-Death Model

Yushu Liu, Mohammadamin Edrisi, Huw A. Ogilvie, Luay Nakhleh
Under review in PLOS Computational Biology, 2023.
<https://doi.org/10.1101/2022.01.16.476510>

Phylovar: Towards scalable phylogeny-aware inference of single-nucleotide variations from single-cell DNA sequencing data

Mohammadamin Edrisi, Monica V. Valecha, Sunkara B. V. Chowdary, Sergio Robledo, Huw A. Ogilvie, David Posada, Hamim Zafar, Luay Nakhleh
In proceedings of the 30th annual conference on Intelligent Systems for Molecular Biology (ISMB), Bioinformatics 38 (Supplement_1): i195-i202, 2022.
<https://doi.org/10.1093/bioinformatics/btac254>

Current progress and open challenges for applying deep learning across the biosciences

Nicolae Sapoval, Amirali Aghazadeh, Michael G. Nute, Dinler A. Antunes, Advait Balaji, Richard Baraniuk, C. J. Barberan, Ruth Dannenfelser, Chen Dun, Mohammadamin Edrisi, R. A. Leo Elworth, Bryce Kille, Anastasios Kyrillidis, Luay Nakhleh, Cameron R. Wolfe, Zhi Yan, Vicky Yao and Todd J. Treangen
Nature Communications, 13 (1): 1728, 2022.
<https://doi.org/10.1038/s41467-022-29268-7>

Methods for copy number aberration detection from single-cell DNA sequencing data

Xian Fan Mallory, Mohammadamin Edrisi, Nicholas Navin, Luay Nakhleh
Genome Biology, 21 (1): 208, 2020.
<https://doi.org/10.1186/s13059-020-02119-8>

Assessing the performance of methods for copy number aberration detection from single-cell DNA sequencing data

Xian Fan Mallory, **Mohammadamin Edrisi**, Nicholas Navin, Luay Nakhleh
PLOS Computational Biology, 16 (7): 124, 2020.
<https://doi.org/10.1371/journal.pcbi.1008012>

Methods developed during the first National Center for Biotechnology Information Structural Variation Codeathon at Baylor College of Medicine

Medhat Mahmoud, Alejandro Rafael Gener, Michael M. Khayat, [and 43 authors including **Mohammadamin Edrisi**]
F1000Research, 9:1141, 2020.
<https://doi.org/10.12688/f1000research.23773.1>

A Combinatorial Approach for Single-cell Variant Detection via Phylogenetic Inference

Mohammadamin Edrisi, Hamim Zafar, Luay Nakhleh
19th International Workshop on Algorithms in Bioinformatics (WABI 2019) (Vol. 143, p. 22:1-22:13). Schloss DagstuhlLeibniz-Zentrum fuer Informatik, 2019.
<https://doi.org/10.4230/LIPIcs.WABI.2019.22>

Meta-aligner: long-read alignment based on genome statistics

Damoon Nashta-ali, Ali Aliyari, Ahmad Ahmadian Moghadam, **Mohammadamin Edrisi**, Seyed Abolfazl Motahari, Babak Hossein Khalaj
BMC Bioinformatics, 18 (1): 126, 2017.
<https://doi.org/10.1186/s12859-017-1518-y>

SOFTWARE

MaCroDNA: Python implementation of the method introduced in [MaCroDNA: Accurate integration of single-cell DNA and RNA data for a deeper understanding of tumor heterogeneity](#), available on: <https://github.com/NakhlehLab/MaCroDNA>

MoTERNN: PyTorch implementation of the method presented in [MoTERNN: Classifying the Mode of Cancer Evolution Using Recursive Neural Networks](#), available on: <https://github.com/NakhlehLab/MoTERNN>

Phylovar: Python implementation of the method presented in [Phylovar: Towards scalable phylogeny-aware inference of single-nucleotide variations from single-cell DNA sequencing data](#), available on: <https://github.com/NakhlehLab/Phylovar>

scVILP: implementation of the method presented in [A Combinatorial Approach for Single-cell Variant Detection via Phylogenetic Inference](#), available on: <https://github.com/mae6/scVILP>

TEACHING & MENTORSHIP EXPERIENCES

Mentor , REU Data Science, 10-week summer program	Summer 2022
Mentor , Google-Rice Research Experience for Undergraduates (REU), 10-week summer program	Summer 2021
Teaching Assistant , Reasoning About Algorithms (COMP 382)	Fall 2019
Teaching Assistant , Probabilistic Algorithms (COMP 580)	Spring 2019
Teaching Assistant , Bioinformatics: Sequence Alignment (COMP 571)	Fall 2018

HONORS & AWARDS

Honorable Mention of Ian Lawson Van Toch Memorial Award for Outstanding Student Paper in 30th Conference on Intelligent Systems for Molecular Biology (ISMB)
<https://www.iscb.org/ismb2022-general-info/award-winners>
<https://cswb.rice.edu/news/rice-cs-phd-student-mohammadamin-edrisi-wins-honorable-mention-ismb-0> 2022

Rice Computer Science Graduate Fellowship 2017-2018

