ERFAN HOSSEINI SERESHGI

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SUMMARY

Highly motivated and results-oriented software developer with a deep passion for research-intensive software engineering. Demonstrated ability to conduct impactful research, develop innovative algorithms, and implement efficient software solutions in C++, Java and Python. Strong publication record in leading computer science venues and extensive experience in teaching and mentoring. Specialized in shape/graph comparison methods and spatial data analysis.

PROFESSIONAL EXPERIENCE

Graduate Research Assistant, Tulane University 2021-present
New Orleans, LA

- Published 5+ papers in top venues such as SoCG, WADS and ACM SIGSPATIAL
- Received Summer Graduate Award from Connolly Alexander Institute for Data Science (Data Hub) in 2023
- Received Best paper award from ACM SIGSPATIAL International Workshop on Spatial Gems in 2021
- Developed and implemented over 3,000 lines of code for four organizational projects and co-mentored 5 undergraduate researchers.

Data Scientist, LA-CEAL NIH Project Jan 2021-Nov 2021
New Orleans, LA

- Was part of the group that received $1 million NIH grant to engage communities hardest hit by COVID-19 among 12 total entities that received such a grant.
- Collected and labeled social media data of more than 25,000 users using the state-of-the-art NLP and machine learning practices.
- Established and documented a framework for collecting and labeling the social media activities for future research.

Research Software Engineer, Tulane School of Public Health Jan 2021-Nov 2021
New Orleans, LA

- Implemented and maintained a python program to manage and classify collected GPS data from 100+ patients based on census data, crime reports, private datasets and public maps.

IT Specialist, Tulane Pre-college Program Summer 2020
New Orleans, LA

- Ensured high availability and uptime for the program's online platform, with a target of 99.9% uptime, with less than 10 minutes to acknowledge and less than 30 minutes to resolve issues.
- Helped generate revenue by enabling online courses and programs in the beginning of the 2020 pandemic, which estimated to be $100k.
- Developed and maintained a database of frequently asked questions and troubleshooting tips for program staff and students, making it easier for them to resolve common issues on their own.

Jr. Product Manager, AIESEC in Iran 2017 – 2018
Tehran, Iran

- Led a team of 3 developers in the creation of a customer support chatbot that offered 24/7 assistance and resolved up to 75% of submitted issues within 24 hours.

Front-end Developer Intern, Moduland.ir Summer 2017
Tehran, Iran

- Designed and developed a responsive and modern website under Google's Material Design guidelines which increased the company's exposure to the clients roughly 60%

EDUCATION

Tulane University – New Orleans – Ph.D. 2018 – present
– Computer science

Amirkabir University of Technology – Tehran – Bachelor of Science 2014 – 2018
– Computer science

RESEARCH AND PUBLICATIONS

ROADSTER: Improved Algorithms for Subtrajectory Clustering and Map Construction (Just Accepted) 2025
(K. Buchin, M. Buchin, J. Gudmundsson, J. Hendriks, E. Hosseini Sereshgi, R. I. Silveira, J. Sleijster, F. *Staals, C. Wenk),* Computers and Geosciences Journal, 49 pages, 2025.

Length-preserving Matching for Closed Curves 2024
(E. Hosseini Sereshgi, M. Löffler, F. *Staals, C. Wenk),* 31st Fall Workshop on Computational Geometry, 5 pages, 2024.

Map Stitcher: Graph Sampling-based Map Conflation 2024
(E. Hosseini Sereshgi, and C. Wenk), 3rd ACM SIGSPATIAL International Workshop on Spatial Big Data and AI for Industrial Applications (GeoIndustry), 11 pages, 2024.

Graph Sampling for Map Comparison 2024
(J. Aguilar, K. Buchin, M. Buchin, E. Hosseini Sereshgi, R.I. Silveira, C. Wenk), ACM Transactions on Spatial Algorithms and Systems 10(3), 24 pages, 2024.

Drawing Reeb Graphs 2023
(E. Chambers, B.T. Fasy, E. Hosseini Sereshgi, M. Löffler, S. Percival), 31st International Symposium on Graph Drawing and Network Visualization, Poster paper, 2023.

On Length-sensitive Fréchet Similarity 2023
(K. Buchin, B.T. Fasy, E. Hosseini Sereshgi, C. Wenk), 18th Algorithms and Data Structures Symposium (WADS): 208-231, 2023.

Merging Roadmaps using Graph Distance Measures 2022
(E. Hosseini Sereshgi and C.Wenk), 30th Fall Workshop on Computational Geometry, 5 pages, 2022.

Graph Sampling for Map Comparison (received best paper award) 2021
(J. Aguilar, K. Buchin, M. Buchin, E. Hosseini Sereshgi, R.I. Silveira, C. Wenk), 3rd ACM SIGSPATIAL International Workshop on Spatial Gems, 2021.

Measuring Length-Preserving Fréchet Correspondence for Graphs in R^2 2021
(K. Buchin, B. T. Fasy, E. Hosseini Sereshgi and C. Wenk), 29th Fall Workshop on Computational Geometry, 5 pages, 2021.

Improved Map Construction using Subtrajectory Clustering 2020
(K. Buchin, M. Buchin, J. Gudmundsson, J. Hendriks, E. Hosseini Sereshgi, V. Sacristán, R. Silveira, J. Sleijster, F. Staals, C. Wenk), 4th ACM SIGSPATIAL Workshop on Location-Based Recommendations, Geosocial Networks, and Geoadvertising: article 5, 4 pages, 2020.

Computing Relevant Subtrajectory Bundles Faster 2020
(E. Hosseini Sereshgi and C. Wenk), SoCG, Computational Geometry: Young Researchers Forum, 2 pages, 2020.

Clustering Gene Expression with Polygonal Chain Alignment 2018
(H. Banaee, E. Hosseini Sereshgi, A. Mohades, F. Zare) - Capstone project

PRESENTATIONS

Length-preserving Matching for Closed Curves 2024
31st Fall Workshop on Computational Geometry (FWCG)

Map Stitcher: Graph Sampling-based Map Conflation 2024
3rd ACM SIGSPATIAL International Workshop on Spatial Big Data and AI for Industrial Applications (GeoIndustry)

On Length-sensitive Fréchet Similarity 2023
18th *Algorithms and Data Structures Symposium (WADS)*

Merging Roadmaps using Graph Distance Measures 2022
30th *Fall Workshop on Computational Geometry (FWCG)*

Graph Sampling for Map Comparison 2021
3rd *ACM SIGSPATIAL International Workshop on Spatial Gems*

Measuring Length-Preserving Fréchet Correspondence for Graphs in $\mathbb{R}^2$ 2021
29th Fall Workshop on Computational Geometry (FWCG)

The Study of Gentrification on Social Urban Simulation - How Income and Interest Can Shape Neighborhoods 2020
Tulane University

Improved Map Construction using Subtrajectory Clustering 2020
4th ACM SIGSPATIAL, Location-based Recommendations, Geosocial Networks and Geoadvertising

Computing Relevant Subtrajectory Bundles Faster 2020
36th International Symposium on Computational Geometry (SoCG), Young Researchers Forum

Clustering Gene Expression with Polygonal Chain Alignment 2018
Amirkabir University of Technology

A brief Intro to Computational Geometry 2017
Amirkabir University of Technology, Graduate studies seminar

TEACHING EXPERIENCE

Algorithms (Graduate level) Fall 2024
Teaching assistant

Computational Geometry (Graduate level) Fall 2023
Teaching assistant

Arduino course at Tulane Pre-college Program Summer 2022
Instructor

Introduction to Discrete Math Fall 2020
Teaching assistant

Introduction to Algorithms Fall 2019
Teaching assistant

Python game design at Tulane Pre-college Program Summer 2019 and 2022
Instructor

Intro to Computer Science 1 (Python) *Fall 2018, Spring 2019, Spring 2020*
Teaching assistant

Operating systems Lab/Workshop Spring 2017
Teaching assistant

C++ Programming teacher at Helli 4 high school 2014 – 2015
Instructor

LEADERSHIP & VOLUNTEER EXPERIENCE

- Tulane Computer Science Graduate Student Council representative (Spring 2023)
- Senator at Tulane Graduate and Professional Student Association (2020-2022)
- IT team leader at AIESEC in University of Tehran (2017-2018)
- Marketing designer at AIESEC in Amirkabir University of Technology (Spring 2017)
- AIESEC global volunteer for raising public awareness about clean energy and recycling in Guangzhou, China. (Summer 2016)

- Member of scientific association of math and computer science at Amirkabir University of Technology (2015-2016)

CERTIFICATES

- Fundamentals of Deep Learning from Nvidia
- Java programming from Amirkabir University of Technology
- Android development from Amirkabir University of Technology
- Web development and web design from Amirkabir University of Technology
- CITI Group1. Biomedical Researchers
- CITI Group4. IRB, Biomedical Research

SKILLS & ABILITIES

- Skilled in Python, Java and C++
- Familiar with HTML, CSS, Javascript and SQL
- Have worked with R and R studio
- Familiar with Git and Visual Paradigm
- Have some intermediate knowledge about Android Studio
- Have experience working with Adobe Photoshop and illustrator
- Familiar with QGIS and GDAL libraries
- Familiar with Pytorch and Keras

LANGUAGES

- English (fluent)
- Persian (native)
- Arabic (intermediate)

HONORS & AWARDS

- Tulane Connolly Alexander Institute for Data Science Summer Graduate Award (2023) - $2000 prize
- Best paper award at ACM Sigspatial: Spatial Gems (2021)
- Ranked 6th in the Iranian national CS graduate school entrance exam (2018)
- Ranked among top 5 computer science students at Amirkabir University of Technology (class of 2018)
- Semi-finalist in 2014 BAYAN coding contest in Iran
- Ranked among 3% in the Iranian national university/college entrance exam (2014) (More than 60,000 students)
- Was selected by and studied at the national organization for development of exceptional talents (NODET) in Iran