

# ERFAN HOSSEINI SERESHGI

9176075440 | New Orleans, LA | [erfanhosseini.com](http://erfanhosseini.com) | [me@erfanhosseini.com](mailto:me@erfanhosseini.com)

## 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**

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****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, 2024. Just Accepted

**Drawing Reeb Graphs**

2023

(E. Chambers, B.T. Fasy, E. Hosseini Sereshgi, M. Löffler, S. Percival), The 31<sup>st</sup> 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), 18<sup>th</sup> Algorithms and Data Structures Symposium (WADS): 208-231, 2023.

**Merging Roadmaps using Graph Distance Measures**

2022

(E. Hosseini Sereshgi and C. Wenk), 30<sup>th</sup> Fall Workshop on Computational Geometry, 5 pages, 2022.

<b>Graph Sampling for Map Comparison</b> (received best paper award) (J. Aguilar, K. Buchin, M. Buchin, E. Hosseini Sereshgi, R.I. Silveira, C. Wenk), 3 <sup>rd</sup> ACM SIGSPATIAL International Workshop on Spatial Gems, 2021.	2021
<b>Measuring Length-Preserving Fréchet Correspondence for Graphs in <math>\mathbb{R}^2</math></b> (K. Buchin, B. T. Fasy, E. Hosseini Sereshgi and C. Wenk), 29 <sup>th</sup> Fall Workshop on Computational Geometry, 5 pages, 2021.	2021
<b>Improved Map Construction using Subtrajectory Clustering</b> (K. Buchin, M. Buchin, J. Gudmundsson, J. Hendriks, E. Hosseini Sereshgi, V. Sacristán, R. Silveira, J. Sleijster, F. Staals, C. Wenk), 4 <sup>th</sup> ACM SIGSPATIAL Workshop on Location-Based Recommendations, Geosocial Networks, and Geoadvertising: article 5, 4 pages, 2020.	2020
<b>Computing Relevant Subtrajectory Bundles Faster</b> (E. Hosseini Sereshgi and C. Wenk), Computational Geometry: Young Researchers Forum, 2 pages, 2020.	2020
<b>Clustering Gene Expression with Polygonal Chain Alignment</b> (H. Banaee, E. Hosseini Sereshgi, A. Mohades, F. Zare) - Capstone project	2018

## PRESENTATIONS

<b>On Length-sensitive Fréchet Similarity</b> 18 <sup>th</sup> Algorithms and Data Structures Symposium (WADS)	2023
<b>Merging Roadmaps using Graph Distance Measures</b> 30 <sup>th</sup> Fall Workshop on Computational Geometry (FWCG)	2022
<b>Graph Sampling for Map Comparison</b> 3 <sup>rd</sup> ACM SIGSPATIAL, Spatial Gems	2021
<b>Measuring Length-Preserving Fréchet Correspondence for Graphs in <math>\mathbb{R}^2</math></b> 29 <sup>th</sup> Fall Workshop on Computational Geometry (FWCG)	2021
<b>The Study of Gentrification on Social Urban Simulation - How Income and Interest Can Shape Neighborhoods</b> Tulane University	2020
<b>Improved Map Construction using Subtrajectory Clustering</b> 4 <sup>th</sup> ACM SIGSPATIAL, Location-based Recommendations, Geosocial Networks and Geoadvertising	2020
<b>Computing Relevant Subtrajectory Bundles Faster</b> 36 <sup>th</sup> International Symposium on Computational Geometry (SoCG), Young Researchers Forum	2020
<b>Clustering Gene Expression with Polygonal Chain Alignment</b> Amirkabir University of Technology	2018
<b>A brief Intro to Computational Geometry</b> Amirkabir University of Technology, Graduate studies seminar	2017

## TEACHING EXPERIENCE

<b>Arduino course at Tulane Pre-college Program</b> Instructor	Summer 2022
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<b>Introduction to Discrete Math</b> <i>Teaching assistant</i>	Fall 2020
<b>Introduction to Algorithms</b> <i>Teaching assistant</i>	Fall 2019
<b>Python game design at Tulane Pre-college Program</b> <i>Instructor</i>	Summer 2019 and 2022
<b>Intro to Computer Science 1 (Python)</b> <i>Teaching assistant</i>	Fall 2018, Spring 2019, Spring 2020
<b>Operating systems Lab/Workshop</b> <i>Teaching assistant</i>	Spring 2017
<b>C++ Programming teacher at Helli 4 high school</b> <i>Instructor</i>	2014 – 2015

## 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 6<sup>th</sup> 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