Mehrshad Taziki

Mehrshad00taziki@gmail.com

Education

Bachelor of Computer Science, Sharif University of Technology **Sep. 2020 – Present**

GPA : 19.91/20 (Rank 1st in Computer Science Programme) *Tehran, Iran*

Research Interests

- Combinatorial Optimization
- Algorithmic Graph Theory
- Approximation Algorithms
- Theory of Computation

Research Experience

Independent Bachelor's Research Project

- Working on Uncertain K-Center Problem and different methods to approximate this problem in certain specific settings.
- The uncertain k-center problem assigns each client a probability distribution over different locations rather than a deterministic single location.
- Our objective is to allocate each client to a corresponding center as well as decide which k centers to open to minimize the expected cost of the K-Center objective function.

Summer Research Program **Jul 2023 – Sep 2023**

The Institute of Theoretical Computer Science and Communications, Chinese University of Hong Kong

- Working with Prof. Amin Aminzadeh Gohari about the relative fractional independence number and it's applications to approximate the Shannon number of graphs.
- I have developed methods for computing this number within specific graph families as well as some useful properties and theorems regarding this number.

Research Project for Combinatorial Optimization Course **Jun 2023 – Jul 2023**

Sharif Univeristy of Technology, Tehran, Iran

- We explored various algorithms to solve this problem, including Goldberg's Algorithms, Charikar's LP, Greedy Peeling algorithm, and the recently introduced Iterative Greedy Peeling algorithm. We implemented these algorithms efficiently and conducted a computational study on each of them.
  You can find the results and these implementations on my github.

Preprints

Relative Fractional Packing Number and Its Properties

Mehrshad Taziki. https://arxiv.org/abs/2311.16390

Voluntary Teaching Experiences

Teaching Assistant | Design of Algorithms **Fall 2023**

Teaching Assistant | Data Structures and Algorithms **Fall 2023**

Teaching Assistant | Theory of Languages and Automata **Fall 2023**

Teaching Assistant | Foundation of Mathematics **Spring 2023**

Head Teaching Assistant | Basic Programming **Fall 2022**

Teaching Assistant | Data Structures and Algorithms **Fall 2022**

Teaching Assistant | Theory of Languages and Automata **Fall 2022**

Head Teaching Assistant | Linear Algebra **Spring 2022**

Relevant Courses

Approximation Algorithms$^+$ (Graduate) | 20/20 **Fall 2023**

Randomized Algorithms$^+$ (Graduate) | 20/20 **Fall 2023**

Algorithms and Computation Seminar$^+$ (Graduate) | N/A **Fall 2023**
This Seminar Is Mainly Focused on Augmentation Problems, Especially, Tree and Cactus Augmentation Problems.

Operations Research | 20/20 **Fall 2023**

Combinatorial Optimization | 20/20 **Spring 2023**

Theory of Computation | 20/20 **Spring 2023**

Analysis of Algorithms | 20/20 **Spring 2023**

Game Theory | 20/20 **Fall 2022**

Graph Theory and Applications | 20/20 **Spring 2022**

Theory of Languages and Automata | 20/20 **Spring 2022**

Mathematical Logics | 20/20 **Spring 2022**

Data Structures and Algorithms | 20/20 **Fall 2021**

Voluntary Activities

Environmental Enthusiasts Association
Participated in environmental awareness events, including tree planting and forest cleaning activities both on and off campus.

Computer Skills

- Java **Advanced**
- C++ **Advanced**
- Python **Advanced**
- LaTeX **Advanced**

Languages

- Persian **Mother-tongue**
- English **Fluent**