

February 18, 2025

School of Computer Science
Institute for Research in Fundamental Sciences (IPM)
Tehran, Iran

Dear Hiring Committee,

I am writing to apply for the postdoctoral position at the School of Computer Science, IPM. I have developed several new methods during my PhD years and I want to generalize them to the general field of algorithm and their connections to trending research topics such as fine-grained complexity, massively parallel algorithms for graphs, and computational geometry problems in these settings.

I hold a Ph.D. in Software Engineering (Computer Engineering, Algorithms and Computation) from Sharif University of Technology, Tehran, and my thesis was on *Approximation MapReduce Algorithms for Some Geometric Problems*, under the supervision of Prof. Mohammad Ghodsi. My research areas are computational geometry for large-scale data processing using massively parallel computation models such as MapReduce.

I obtained an M.S. in Software Engineering from Sharif University of Technology, where I ranked 3rd overall and 2nd in the algorithms and complexity branch. My thesis, supervised by Prof. Hamid Zarrabi-Zadeh, was on *Approximation Algorithms for Finding Diverse Near Neighbors*, which lies in the same research field.

I also hold a B.Sc. in Software Engineering from AmirKabir University of Technology, where I graduated first in my class. My undergraduate research, supervised by Prof. Bahman Pourvatan, focused on *Semantic Search of Symbolic Execution of Constraint Automata* that used algorithmic concepts such as the doubling algorithm for metric k -center and the Jaccard similarity measure for subsets.

My research interests include Computational Geometry, Sublinear Algorithms, Approximation Algorithms, MapReduce and Parallel Algorithms, Big Data Algorithms and Analytics, and Data-Driven Algorithm Design. I am particularly drawn to IPM because of its strong emphasis on fundamental research and its collaborative research environment.

I believe my background in theoretical computer science, my research experience in the related fields, and my knowledge of theoretical and experimental aspects of algorithm design align well with the objectives of the computer science school of IPM. I look forward to the opportunity to discuss my application further and explore how I can contribute to the ongoing research at your esteemed institution.

Thank you for considering my application.

Sincerely,
Sepideh Aghamolaei