Seyyed Aliasghar **Hosseini**

DATA SCIENTIST · MATHEMATICIAN · RESEARCHER

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Highlights

- Experienced in algorithm design, implementation and debugging through various projects and competitions.
- Exceptional data analysis skills gained through several projects with practical applications.
- Excellent research ability in various subjects in different teams which resulted in several publications.
- Distinguished problem solving and critical thinking abilities as well as short learning curve.

Skills

- Programming
- Algorithms
- Debugging
- Data Structures
- Optimization
- Modelling
- Probability
- Combinatorics
- Machine Learning
- Data Mining
- Data Analysis
- Deep Learning
- C / C++
- Matlab
- Python
- Maple
- SQL
- GUI
- HTML
- LaTeX

Experience

Post Doctoral Fellowship   *Simon Fraser University*

COMPUTING SCIENCE - GRAPHS AND ALGORITHMS   *July. 2018 - present*

- Vertex arboricity of co-graphs, a vertex partitioning problem.
- Active Cops and Robbers on graphs.
- Edge asteroidal triple free graphs.
- Efficient computer search on ABC-minimal trees.

Course scheduling patterns   *Simon Fraser University*

RESEARCH ASSISTANT   *Aug. 2017 - May 2018*

- Designed a mathematical model to minimize the conflict of courses among different faculties.
- Analyzed the data of last 5 years to extract and understand the behavior of students, faculties and their conflicts.
- The resulting pattern has been used to schedule classes since September 2018.

Optimization of PPC digital ad campaigns and revenues   *PartsAvatar Inc.*

MITACS INTERN   *May 2017 - August 2017*

- Explored the advertising method and data of PartsAvatar Inc. in the last 2 years from Google AdWords.
- Designed an algorithm to optimize the revenue of advertising for more than 8000 words.
- he algorithm was able to overcome the Google AdWords built-in machine learning suggestions.

Exam difficulty and discrimination   *Department of Mathematics, SFU*

RESEARCH ASSISTANT   *June 2016 - August 2016*

- Analyzed more than 20000 questions to find a reasonable parameter to measure the difficulty level.
- Extended the results to measure the teaching quality and fairness of instructors.
- Results in being used to help designing better exams, distinguish challenging topics and measure instructors.

Honors & Awards

SCHOLARSHIP
- **Graduate Fellowship of Mathematics Department**, Summer 2015-2017 and Spring 2018.
- **Department of Mathematics Graduate School award**, Fall 2015.

PROGRAMMING CONTESTS
- **4th Place**, Microsoft Programming Contest, September 2015.
- **4th Place**, 10th Annual Winter Programming Contest, SFU, 2014.
- **1st Place**, Shiraz University Programming Contest, 2010.
- **2nd Place**, Kashan University Programming Contest, 2009.

MATHEMATICAL COMPETITIONS
- **Silver medal**, National Mathematics Competition, 2011.
- **Bronze medal**, National Mathematics Competition, 2010.
- **Third Prize**, International Mathematics Competition for Students, Blagoevgrad, Bulgaria, 2010.

CITATIONS
- **h-index**: 5
- **i10-index**: 5
- **# Citations**: 197
- **Erdös Number**: 2

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Education

- **PhD in Mathematics**, Graph theory
  Simon Fraser University, Burnaby, BC, 2014 - 2018
  Supervisor: Dr. Bojan Mohar
  GPA: 4.19 out of 4.33

- **Bachelor of Science in Mathematics**
  Shiraz University, Shiraz, Iran, 2007 - 2011
  GPA: 18.70 out of 20   ranked 1st

- **Master of Science in Mathematics**, Operations Research
  Shiraz University, Shiraz, Iran, 2011 - 2013
  Supervisor: Dr. Mohammad Bagher Ahmadi
  GPA: 17.91 out of 20   ranked 1st

- **Bachelor of Engineering in Mechanics**
  Shiraz University, Shiraz, Iran, 2007 - 2011
  GPA: 16.87 out of 20   ranked 5th

Courses

Selected Graduate Courses

Algorithmic Graph Theory, Graph Limits, Coding Theory, Combinatorial Theory, Advanced Operations Research, Advanced Linear Programming, Real Analysis, Advanced Numerical Analysis,Optimization of Non-linear Modellings.

Selected Undergraduate Courses

Discrete Mathematics, Operations Research, Programming, Data Structures, Advanced Programming, Graph Theory, Linear Algebra, Numerical Analysis, Probability and Statistics, Stochastic Processes.

Online Courses

Python, Machine Learning, Deep Learning, Data Mining and SQL.

Teaching Experience

Lecturer
- MATH 100 and MATH 099, Spring and Fall 2018, Alexander College.
- Analytical/Quantitative Reasoning (FAN X99), Fall 2016, 2017 and 2018, Simon Fraser University.

Teaching Assistant   *SFU & Shiraz University*
- Calculus Support Sessions   • Applied Calculus Workshop   • Programming (Matlab)   • Discrete Mathematics

Academic Projects

Game of Cops and Robbers in graphs and digraphs, January 2016 - present.
- Game Theory   • Complexity Analysis   • Structural Graph Theory   • Minors and Immersion   • Algorithm

Vertex-arboricity of graphs, May 2017 - present.
- Coloring   • Complexity Analysis   • Recursion   • Minimal Obstructions   • Combinatorial Optimization

Structural properties of ABC-minimal trees, May 2016 - August 2017.
- Discrete Optimization   • Non-linear Optimization   • Random Graphs   • Programming   • Graph Limits

Normal cubic and random graphs, May 2015 - April 2016.
- Algorithm Designing   • Algorithm Analysis   • Case Analysis   • Combinatorial Optimization   • Probability

Reliability and Survivability of Networks, September 2012 - August 2013.
- Non-linear Optimization   • Network Analysis   • Matlab   • Probability   • Multi-objective Optimization

Publications

- 8 published and 4 submitted papers.
- To see a complete list of publications please visit my website (`www.sfu.ca/~sahossei`).