

# Alireza Afzal Aghaei

## Data Scientist



I am a dedicated and highly motivated computer scientist with a strong academic background and a passion for cutting-edge technology. My journey in the world of computer science has led me to excel in various domains, from machine learning and deep learning to scientific computation. Currently pursuing a Ph.D. in Computer Science at Shahid Beheshti University, I am actively engaged in developing innovative solutions for solving complex differential and integral equations using physics-informed machine learning algorithms under the guidance of Dr. Kourosh Parand. My research and academic achievements have been recognized with outstanding grades, and my commitment to advancing the field is reflected in my roles as a Lecturer and Research Assistant at the same institution, where I impart knowledge on fundamentals of programming, mathematical software, and advanced data mining. With a strong foundation in programming languages, mathematical software, and a range of technical skills, including Python, GNU/Linux, web development, and data science, I am eager to contribute my expertise to challenging projects and continue my journey of growth and innovation in the field of computer science.

### Personal info

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#### Address

Boys Dormitory, Daneshju Blvd, Velenjak, Tehran,  
Iran

#### E-mail

[alirezaafzalaghaei@gmail.com](mailto:alirezaafzalaghaei@gmail.com)

#### Marital status

Single

#### LinkedIn

[linkedin.com/in/afzalaghaei](https://www.linkedin.com/in/afzalaghaei)

#### Gitlab

[gitlab.com/alirezaafzalaghaei](https://gitlab.com/alirezaafzalaghaei)

#### Quera

[quera.org/profile/kcvf48](https://quera.org/profile/kcvf48)

#### ResearchGate

[researchgate.net/profile/Alireza-Afzal-Aghaei](https://researchgate.net/profile/Alireza-Afzal-Aghaei)

#### Phone

+98 937-622-4365

#### Date of birth

07 Jun 1996

#### Military status

Educational Exemption

#### GitHub

[github.com/alirezaafzalaghaei](https://github.com/alirezaafzalaghaei)

#### Stackoverflow

[stackoverflow.com/users/4348709](https://stackoverflow.com/users/4348709)

#### Google Scholar

[scholar.google.com/citations?user=EYSSZjMAAAAJ](https://scholar.google.com/citations?user=EYSSZjMAAAAJ)

#### Telegram

[t.me/conficker](https://t.me/conficker)

## Experience

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- Sep 2022**      **Lecturer**  
**Present**      *Shahid Beheshti University*  
Fundamentals of Programming, Mathematical Softwares 1 and 2
- Sep 2022**      **Research Assistant**  
**Present**      *Shahid Beheshti University*
- Feb 2022**      **Teacher Assistant**  
**Present**      *Shahid Beheshti University*  
Advanced Data Mining, Data Mining, Numerical Analysis, Numerical Linear Algebra
- Dec 2020**      **Principal Data Scientist**  
**Present**      *T1Solution*  
Machine Learning and Deep Learning solutions for Eye Diseases
- Oct 2018**      **Teacher Assistant**  
**Nov 2018**      *Shahid Beheshti University*  
Fundamentals of programming
- Sep 2015**      **Teacher Assistant**  
**Mar 2018**      *Damghan University*  
Fundamentals of programming, Advanced programming, and Data structures

## Education

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- Jan 2021**      **School of Data Science and Computer, Shahid Beheshti University, Iran**  
**Present**      *Ph.D, Computer Science*  
*Thesis: Developing Physics-Informed Machine Learning Algorithms For Solving Differential And Integral Equations, Supervised by Kourosh Parand*
- Sep 2018**      **School of Data Science and Computer, Shahid Beheshti University, Iran**  
**Sep 2020**      *M.Sc. Computer Science, Scientific Computation. Outstanding Student, Superior Grade 19.19/20*  
Thesis: Extending machine learning algorithms for solving Fredholm integral equations, Supervised by Kourosh Parand
- Sep 2014**      **School of Mathematics and Computer Science, Damghan University, Iran**  
**May 2018**      *B.Sc. Computer science. Outstanding Student, Superior Grade 19.35/20*  
Thesis: Solving Fredholm integral equations of the second kind using parallelized modified cuckoo optimization algorithm, Supervised by Hassan Dana



## Publications (Highlights)

### A new approach to the numerical solution of Fredholm integral equations using least squares-support vector regression

*K. Parand, A.A. Agahei, M. Jani, A. Ghodsi*

Mathematics and Computers in Simulation

### Parallel LS-SVM for the numerical simulation of fractional Volterra's population model

*K. Parand, A.A. Agahei, M. Jani, A. Ghodsi*

Alexandria Engineering Journal

### A neural network approach for solving nonlinear differential equations of Lane–Emden type

*K. Parand, A.A. Agahei, S. Kiani, T.I. Zadeh, Z. Khosravi*

Engineering with Computers

### Automated assessment of the smoothness of retinal layers in optical coherence tomography images using a machine learning algorithm

*J. Saeidian, T. Mahmoudi, H. Riazi, Z. Montazeriani, A. Khodabande, M. Zarei, N. Ebrahimiadib, B. Jafari, A.A. Aghaei, H. Azimi, E. Khalili Pour*

BMC Medical Imaging



## Books

### راهنمای کاربردی پایتون برای علم داده‌ها

[View Table of Contents in ResearchGate](#)

[View in National Library and Archives of Iran \(NLAI\).](#)



## Patents

### روش و سامانه تشخیص ناهنجاری های قرنیه چشم بر مبنای هوش مصنوعی

[View in Deeds and Properties Registration Organisation of Iran](#)



## Skills

#### Python

Python 3.x and it's internals



#### GNU/Linux

Manjaro, Ubuntu, Bash, KDE desktop



#### Mathematical Softwares

Matlab, Maple, Octave



#### Web Development

HTML, CSS, JavaScript, Ajax, PHP (Telegram Bot), Django, Sanic, Wordpress



#### Databases

Basic knowledge of MySQL, SQLite, Redis





## Other skills

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### *Data Science*

Machine Learning and Deep Learning Algorithms



### *Evolutionary Algorithms*

Genetic Algorithm, Cuckoo Optimization Algorithm, and Chimp Optimizatio Algorithm



### *Parallel Computation*

Familiar with OpenMP, MPI, Cuda



### *C-Family Programming Languages*

C, C++, C#



### *Computer Vision*

Basic knowledge of Image Processing techniques



### *LaTeX*

Familiar with LaTeX, XePersian, Beamer and Tikz



### *Microsoft Office Suite*

Familiar with Microsoft Word, Powerpoint and Excel



### *Version Control Systems*

Basic knowledge of Git



### *Adobe Creative Suite*

Basic experience in Photoshop, Illusterator, After Effects, Character Animator



## Current studies

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### *Machine learning and Deep learning*

Using Deep learning techniques for solving real-world problems

### *Scientific computation*

Differential and Integral Equations, Numerical Analysis, and Numerical Linear Algebra



## Projects

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### *Parallel Cuckoo Optimization Algorithm*

Implementation of Parallel COA in C++ [[Source Code](#)]

### *Web-Based music player*

A simple web-based music player for a local network [[Source Code](#)].

### *RSS Reader Chrome Extension*

Replace Chrome's new page tab with the latest news [[Source Code](#)]

### *Electronic Election System*

An Electronic Election System written in Django [[Source Code](#)].

### *A Persian Beamer Template*

A Persian Beamer Template for Slides [[Source Code](#)].



## Languages

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*Persian*

Native



*English*

SBTTEP 67/100



## References

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### **Kouros Parand**

*Professor of Scientific Computing, Shahid Beheshti University, Department of Computer Science*

k\_parand@sbu.ac.ir

### **Hassan Dana**

*Lecturer at school of mathematics and computer science, Damghan University*

dana@du.ac.ir