

Ali Abolhassanzadeh Mahani | CV

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Education

Academic Qualifications

- Bachelor of Science, Physics** **Tehran-Iran**
2018-Present
 - Department of Physics, Sharif University of technology,
- Pre-University course (college like)** **Yazd-Iran**
2017-2018
 - Shahid Sadoughi Pre-University, Sampad
 - Field:** Mathematics & Physics
- Summer School** **Tehran, Iran**
July-Aug. 2017
 - Young Scholars Club, Shahid Rajaei Teacher Training University
 - National Physics Olympiad
 - Syllabus:** Electrodynamics, Statistical Physics, Classical Mechanics
- High school** **Yazd-Iran**
2014-2017
 - Shahid Sadoughi High School, Sampad
 - Field:** Mathematics & Physics

Selected Courses

- Introduction to Psychology:** 20/20
- Computational Physics:** 20/20
- Non-linear Dynamics and Chaos:** 17/20
- Machine Learning in Physics:** 16.6/20

Notable Projects

- A computational study of homophily and diffusion of common knowledge on social networks based on a model of Facebook** (*Educational Project*)

This is a reproduction of the original paper by this name for our course in Computational Physics. In this article, we describe the Common Knowledge in Facebook (CKF) model of diffusion and simulate it on two toy networks, an Erdos-Renyi and a scale-free network, by introducing a game-theoretic approach to the model. We compute the appearance of homophily, contagion spread speed and size, and the probability of cascades. All of which are defined explicitly in the paper.

Collaborator(s): Sina Moammar
Advisor: Dr. Fakhteh Ghanbarnezhad
Code: GitLab
- Simulation of Physical Phenomena (Fun Simulations)** (*Lifelong Project*)

This is a project I started with the hope of trying new simulations and coming up with new ideas as I study *Computational Physics* and *Complex Systems*; and then upload them on github hoping that as the volume grows it becomes a suitable source of information and practice for students majoring in Complex Systems or Computational Physics. The simulations include topics such as: Quantum Numerical Analysis, Molecular Dynamics, Self-Organized Criticality, etc.

Code: GitHub

Conferences and Presentations

- **ICTP Workshop** **Trieste, Italy (Online)**
○ *8th Workshop on Collaborative Scientific Software Development and Management of Open Source Scientific Packages* *Oct. – Dec. 2021*
Topic: Git/GitLab, Python Packaging, Docker, Auto Documentation, Project Management
Certificate: [Here](#)

Honors and Awards

- **Bronze Medal** **Tehran, Iran**
○ *Iran National Physics Olympiad* *Aug. - Sep. 2017*

Teaching Experiences

- **Computational Physics TA-ship** **Tehran, Iran**
○ *Department of Physics, Sharif University of Technology* *Fall 2021*
Monte Carlo, Metropolis Algorithm, Numerical Integration, Molecular Dynamics, etc.
- **Teaching Physics Olympiad** **Mazandaran, Iran**
○ *Caspian Olympiad Club, NODET* *Aug. 2018 - Feb. 2019*
Classical Thermodynamics and Thermal Physics.
- **Teaching Physics Olympiad** **Yazd, Iran**
○ *Shahid Sadoughi High school, NODET* *July - Aug. 2018*
Classical Mechanics and Advanced Calculus.

Skills

- **Technical skills and competences:**
C/C++, \LaTeX , Python, Julia, Data Analysis, Git, Bash, Unix/Linux, Wordpress
- **Language:**
English (Professional working proficiency), Persian (mother tongue)

Interests

- **Research Interests**
Computational Physics, Complex System, Computational Neuroscience, Cybernetics
- **Personal Interests:**
Computer Graphics, Classical Guitar, Squash, Translation, Making Desserts

Executive Roles

- **Vice-Chair for Education** **Tehran, Iran**
○ *Sharif University of Technology, Central Student Council* *Sep.2020–Dec.2021*
 - Had discussions with the ministry of Education for some changes regarding the situation of university students during the Covid-19 pandemic
 - Resolved problems among the faculty and students about the quality of education and methods of teaching and examination.
- **President of Student Council** **Tehran, Iran**
○ *Sharif University of Technology, Department of Physics* *Sep.2020–Dec.2021*

- Co-organized a team to record some of the popular courses of the Department and save them on the cloud
- Co-organized online meetings between the faculty and the students for open discussion regarding the difficulties of online tutoring.
- Resolved educational problems among the faculty and the students
- Negotiated with Vice-Chair for Education of the Department so that we can have some of the popular courses in the department that are rarely held.

Vice-President of Student Council

Tehran,Iran

○ *Sharif University of Technology, Department of Physics*

Mar.2019–Sep.2020

- Gathered flaws in Educational System and Workflow of the Department and helped the board of directors in solving them
- Managed and Maintained Lockers for students at the Physics Dept.
- Solved official complications between students and faculty
- Reflected student proposals regarding the courses and classes to the Dept. HQ by having frequent meeting sessions and emailing

Organizer

Tehran,Iran

○ *Dept. of Physics at Sharif University of Technology, Quanta Club*

Sep.2019–Present

- Organized the "Algorithm Design and Physics" Study Club at Quanta Club under the supervision of the Physics Scientific Association
- Taught Dynamic Programming as a Section of the Group Syllabus
- In the second round of this club, I supervised the students and answered their questions.
- Managed all the web content regarding this study circle

Fundraiser

Tehran,Iran

○ *Dept. of Physics at Sharif University of Technology*

June 2019–Present

- Gathered and listed structural flaws in the department and prioritized the construction costs
- Organized meetings with other members of the student council, physics society and the department executive board to discuss the matters
- co-founded a deposit box for the department with the help of Sharif Foundation

Web Developer

Tehran,Iran

○ *Quanta Club, Physics Scientific Association, Dept. of Physics at SUT*
quanta.spssa.ir

Feb. 2020–Present

- Converted the site from bootstrap to wordpress for easy access of the editors
- Further developed the theme currently in use