

EDUCATION

Sharif University of Technology, Tehran, Iran

Bachelor of Science, Physics

– CGPA: 17.46/20

Sep 2018 - May 2023 (Expected)

Farzanegan 1 High School, Tehran, Iran

Diploma

– CGPA: 19.46/20

Sep 2014 - May 2018

RESEARCH INTERESTS

- **Superconducting Circuits**
- **Circuit Quantum Electrodynamics**
- **Quantum Computation and Information**
- **Complex Systems**
- **Computational Physics**

INTERNSHIP

Preparing arbitrary fock states in a cavity, using GRAPE algorithm

Supervisors: Prof. Benjamin Huard and Dr. Audrey Bienfait

(Quantum Circuit Group, ENS Lyon, France)

Jul - Oct 2022

- Using the GRAPE algorithm to find the control pulses in a cavity-qubit coupled system to reach an arbitrary fock state in the cavity and finding the right translation between simulation values and amplitudes in the experiment.

[Further descriptions.](#)

RESEARCH PROJECTS

Quantum Information Group, Universitat Autònoma de Barcelona, Spain

Supervisor: Prof. Andreas Winter

Apr 2022 - Now

- **Observational Entropy and Correlations:** Finding properties of the Observational Entropy under different measurements.

Quantum Information Science Group, Sharif University, Iran

Supervisor: Prof. Vahid Karimipour

Feb - Jun 2022

- **Generalized Landau-Streeter channel in the high-dimensions:** Computing quantum information properties of the generalized form of the Landau-Streeter Channel in the higher dimensions.

Sharif University, Iran

Supervisor: Dr. Saman Moghimi Araghi

Jul 2021 - Now

- **Abelian Sandpile Model:** Examining Self-organized Criticality in the 2d-grid for Abelian Sandpile Model by focusing on longer links' existence.

Sharif University, Iran

Supervisors: Dr. Fakhteh Ghanbarnejad and Dr. Farnoush Farahpour

Apr 2020 - Apr 2021

- **The way observation reflects the reality of SIR, SEIR, SIRD dynamics:** Estimating the real epidemic dynamics with a random sampling at a macroscopic level.

COURSE PROJECTS

Information theory: The Capacity of Classical-Quantum Channels

Supervisor: Prof. Mohammad R. Aref - Report file

Fall 2021

Quantum Mechanics: Discrete Element Method Simulation for Different Potentials

Supervisor: Dr. Abolhassan Vaezi - Simulation files

Spring 2021

Computational physics: Ising Model and Phase Transitions Simulation

Supervisor: Dr. Fakhteh Ghanbarnejad

Fall 2020

Optics: Optical Communication

Supervisor: Dr. Sadegh Raeisi - Report file

Spring 2022

Advanced Quantum Mechanics: Geometric Phase in Quantum Mechanics

Supervisor: Dr. Amin Faraji Astaneh - Report file

Fall 2021

WORKSHOPS	Topology and Non-equilibrium Dynamics in Engineered Quantum Systems	
	<i>Max Planck Institute for the Physics of Complex Systems</i>	<i>Oct 2022</i>
	Quantum Transport with Ultracold Atoms	
AWARDS & ACHIEVEMENTS	<i>Max Planck Institute for the Physics of Complex Systems</i>	<i>Aug - Sep 2022</i>
	Journées de la Matière Condensée (JMC)	
	<i>Société Française de Physique</i>	<i>August 2022</i>
SELECTED COURSES	Silver medal , in Iran's national Olympiad of Astronomy and Astrophysics, 2017	
	Member of Iran's National Elites Foundation	
	Quantum Theory courses:	
TEACHING EXPERIENCES	– Advanced Quantum Mechanics (M.Sc, 18.5/20), Quantum Computing (Ph.D., 16/20)	
	Information Theory courses:	
	– Information Theory (M.Sc, 16/20), Quantum Information Theory (Audit)	
SKILLS	Complex Systems courses:	
	– Complex Systems (M.Sc, 19.5/20), Stochastic Process (M.Sc, 18.9/20), Computational Physics (M.Sc, 18.9/20), Game Theory (M.Sc, 20/20)	
	Further descriptions	
LANGUAGES	Teacher Assistant: Stochastic Processes in Bioinformatics (M.Sc)	
	<i>Dr. Mohammad Hossein Rohban</i>	<i>Spring 2022</i>
	Teacher Assistant: Game Theory (M.Sc)	
REFERENCES	<i>Dr. Mohammad Hossein Rahmati</i>	<i>Spring 2022</i>
	Teacher Assistant: Statistical Modeling (M.Sc)	
	<i>Dr. Fakhteh Ghanbarnejad</i>	<i>Spring 2021</i>
	Olympiad Instructor	
	Providing courses to prepare high school students for the National Astronomy Olympiad. <i>Fall 2017 - Now</i>	
	– Topics: Classical Mechanics, Astrophysics, Cosmology, Spherical Astronomy, Data analysis	
	– Institutions: Farzanegan 1 , Farzanegan 2 , Salam , Summer school of National Astronomy and Astrophysics Olympiad (Observational Astronomy test writer)	
	Further descriptions	
	Programming Languages: QUA , Python (QuTiP, SciPy, NetworkX, Pandas, Matplotlib, Seaborn, Numpy), Matlab	
	Tools: cQED (Qubit measurement), Quantum Orchestration Platform (QOP) , L ^A T _E X, Mathematica, Office, Adobe Photoshop	
	Persian: Native, English: Advanced	
	Saman Moghimi Araghi, Sharif University of Technology, Tehran, Iran	
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	Audrey Bienfait, Ecole Normale Supérieure, Lyon, France	
	<i>Email address: audrey.bienfait@ens-lyon.fr</i>	<i>Webpage</i>
	Benjamin Huard, Ecole Normale Supérieure, Lyon, France	
	<i>Email address: benjamin.huard@ens-lyon.fr</i>	<i>Webpage</i>
	Alexis Jouan, Ecole Normale Supérieure, Lyon, France	
	<i>Email address: alexis.jouan@ens-lyon.fr</i>	<i>Webpage</i>