Kuroush Allameh

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EDUCATION

Sharif University of Technology, Tehran, Iran
B.Sc in Physics
Sep 2017-Jan 2022 (Expected) GPA: 3.98/4 (19.53/20.00)

Allameh Helli High School, Tehran, Iran
Diploma in Physics and Mathematics
Sep 2013-Sep 2017 GPA: 4/4 (19.70/20.00)

AWARDS AND SCHOLARSHIPS

Member of the National Elites Foundation
Iran National Elites Foundation (INEF) is a statewide organization and composed of members with significant scientific and executive background.

Ranked 1st Among 50 Physics Students (First 4 years).

RESEARCH EXPERIENCE

- **Research Assistant, IPM, Iran**
  Under the supervision of Dr. Ali Naseh at IPM, on the implications of the replica symmetry breaking in calculation of entropy using the Island formula. (2021-present)
- **Research Assistant, Sharif University of Technology, Iran**
  Under the supervision of Dr. Amin Faraji Astaneh at Sharif university of technology, on the topic of $T\bar{T}$ deformation and holographic correction of entanglement entropy. (2021-present)
- **Undergraduate Research Project, Sharif University of Technology, Iran**
  I worked as an undergraduate member in the group of Dr. Ali Naseh at IPM. There I studied the prerequisites of research in the high energy physics and tried to become familiar with the literature and Recent developments specially, in the context of black hole information paradox and quantum gravity by reviewing the important literature in the subject. You can find this review in my **undergraduate thesis**. (2019-2021)
- I attended in regular sessions under the supervision of Prof. Hessamaddin Arfaei. In these sessions we covered some concepts in the black hole physics, such as a review on the Price's theorem and calculations of electromagnetic field outside Schwarzschild and Reissner-Nordstrom black holes. (2020-2021)
- **Research Assistant, Sharif University of Technology, Iran**
  Under the supervision of Dr. Mahdi Torabian at Sharif University of Technology on applying machine learning techniques on particle detection and physics beyond standard model using online Data sets. (2018-2019)
- **Research Assistant, Sharif University of Technology, Iran**
  Under supervision of Dr. Sadegh Raeisi at Sharif University of Technology on Quantum Thermodynamics and Algorithmic cooling. (2018-2019)

SELECTED PROJECTS AND PRESENTATIONS

- A term paper on "**Stringy black holes , counting the number of BH states, Vafa-Strominger counting**" for my String Theory course. 2021
- Multiple talks on "**The Black Hole Information Paradox, Complementarity or Firewalls?**" on Dr.Naseh's Research group at IPM. 2020
- A review paper on Hawking's paper about **Particle creation by black holes** as a term paper for General Relativity course. 2020

- A review paper on **Hierarchy Problem** as a term paper for Introduction to Particle Physics course. 2020
- A talk on **Quantum Random Walks** as project for Quantum Computing course. 2019
- A review paper on **Machine Learning for Higgs boson detection** as a term paper for Machine Learning in Physics course. 2019

SELECTED COURSES AND GRADES

PhD Course

- General Relativity: 20/20,
- Quantum Information Theory: 20/20,
- Quantum Computing: 18.4/20,
- Advanced Mathematical Physics (Geometry and Topology): 20/20,

Master Courses

- Masters Individual Study (AdS-CFT duality): 20/20,
- Advanced Classical Mechanics: 20/20,
- Advanced Quantum Mechanics: 20/20,
- Introductory Quantum Field Theory: 20/20,

Cross-listed (Mutual between master and undergraduate) Courses

- Introduction to String Theory: 20/20,
- Introduction to Elementary Particles: 20/20,
- Machine Learning in Physics: 19.3/20,
- Computer Simulations in Physics: 20/20,
- Group Theory: 20/20,

Off-topic Courses

- Differential Geometry: 20/20,
- Introduction to Dynamical Systems: 20/20,
- Topology: 20/20,

CERTIFICATION

1)Hands-On Research in Complex Systems School, ICTP, Trieste, Italy in which I presented my work on 'Simpler Set of Measurements in a Quantum System determined by Random Decision Trees.'

2)Workshop on Data Science, IPM, Tehran, Iran

TEACHING EXPERIENCE

C Programming Teaching Assistant **Sep 2018 - Jan 2019**
Under the supervision of Dr. Maryam Asadi at Sharif University of Technology

Special Relativity Teaching Assistant **Sep 2020 - Jan 2021**
Under the supervision of Dr. Shant Baghram at Sharif University of Technology

Thermodynamics Teaching Assistant **Sep 2020 - Jan 2021**
Under the supervision of Prof. Vahid Karimipour at Sharif University of Technology

TECHNICAL SKILLS

Programming Languages : Python, C++, C
Familiar : Wolfram Mathematica, HTML, Javascript
General : Machine Learning, Deep Learning, Computational Physics and Simulation

LANGUAGES

- Farsi: Native Language
- English: Professional Working Proficiency.
- German: Elementary Proficiency (reading, writing)

ACADEMIC REFERENCES

1) Dr. Ali Naseh
IPM, Tehran-Iran.
Email address: Naseh@ipm.ir
2) Prof. Hessamaddin Arfaei
Sharif University of Technology, Tehran-Iran.
Email address: arfaei@sharif.edu
3) Dr. Amin Faraji Astaneh
Sharif University of Technology, Tehran-Iran.
Email address: faraji@sharif.ir
4) Dr. Shant Baghram
Sharif University of Technology, Tehran-Iran.
Email address: baghram@sharif.edu
5) Dr. Mahdi Torabian
Sharif University of Technology, Tehran-Iran.
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