Ali Almasi

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Education

École Polytechnique, Institut Polytechnique de Paris — Paris, France
M.Sc. in Computer Science (PhD-track Program) — 2023 - 2025 *(expected)*

- **Master Parisien de Recherche en Informatique (MPRI)**
- M1 Internship Title: *Quantum Guessing Games*

Sharif University of Technology — Tehran, Iran
B.Sc. in Pure Mathematics, Minor in Computer Science — 2018 - 2023

- Bachelor's Thesis Title: *Quantum Proofs*

Research Projects

Quantum Guessing Games (M1 Internship) | Télécom Paris — 2024.04 - 2024.08

- *Supervised by Peter Brown and Cambyse Rouzé*
- An investigation of quantum guessing games, a generalization of quantum state discrimination and antidiscrimination, in which we found closed-form solutions for specific games, defined and analyzed the pretty good measurement for this generalization, and studied the convergence behaviour of an iterative algorithm for determining the optimal strategy.

Positive but not Completely Positive Maps | Télécom Paris — 2023.09 - 2024.03

- *Supervised by Peter Brown*
- A numerical and analytical study of the properties of positive but not completely positive (PnCP) maps, focusing on their applications in entanglement detection and relaxing certain optimization problems over the set of separable quantum states. Using semidefinite programming, we explored the relationship between two fundamental entanglement criteria: positivity under partial application of a PnCP map and entanglement witnesses.

Quantum Proofs (Bachelor's Thesis) | Sharif Univeristy — 2023.01 - 2023.04

- *Supervised by Shahram Khazaei*
- A pedagogical survey (in Persian) intended to be an introduction to quantum complexity theory, focusing on QMA, a quantum analogue of NP.

Talks and Presentations

Convergence Analysis of Iterative Methods for Quantum State Discrimination
Poster Presentation at YQIS24 — 2024.11

Iterative Algorithms for Quantum State Discrimination
Invited Talk at Télécom Paris, Quriosity — 2024.07

Positive Maps and their Applications in the Study of Entanglement
Invited Talk in Hamband Scientific Association — 2023.10

Teaching Experiences

Teaching Assistant (at Sharif University of Technology)
Automata Theory, Theory of Computer Science, Linear Algebra, Probability, Logic, Topology, Complex Analysis — 2020 - 2023

Part-time Mathematics Teacher
Allameh Helli Middle School and High School — 2019 - 2023

Awards

Recipient of the Full-package PhD-track Scholorship
Institut Polytechnique de Paris — 2023

Skills

Programming: `Python`, `C`, `Java`, `Agda`, `LaTeX`

Other Activities

Head Organizer and Mentor
Sharif Mathematics Summer School (for high school students) 2019.07

Member of Hamband Scientific Association
Sharif University of Technology, Department of Mathematics 2019.06 - 2020.08

Editorial Board of Sharif Students Mathematics Journal
A student journal conducted by current and former students of the mathematics department at Sharif University of Technology 2023.04 - 2023.08