

# Maria Papanikolaou

Quantum Computing Scientist · QML Researcher

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## EDUCATION

### MSc — Data Science & Machine Learning

National Technical University of Athens (NTUA)

Grade: 8/10 · ECTS: 90 · Thesis: Hybrid QML for Protein Folding via VQE and QAOA on IBM Quantum hardware

Sep 2022 – Jul 2024

### BSc — Physics

University of Patras

Grade: 8/10 · ECTS: 240 · Thesis: Dynamical Decoupling on Quantum Encoded States (10/10)

Oct 2017 – Oct 2021

## PROFESSIONAL EXPERIENCE

### Quantum Computing Scientist & QML Researcher

Quantum Neural Technologies (QNT) SA · Athens, Greece

VQE · QAOA · PennyLane · Qiskit · IBM Quantum · Azure Quantum · PyTorch

Aug 2022 – Present

### Quantum Computing Scientist — Internship

Wigner Research Center for Physics · Budapest, Hungary

IBM Quantum · Entanglement · Gate Decomposition · Error Mitigation · QKD

Oct 2021 – Jan 2022

## PUBLICATIONS & ACADEMIC WORK

### Spacetime as a Causal Viscous Fluid: A Single Lagrangian for Gravity, Electromagnetism, and the Emergence of Schrödinger Dynamics

Preprint (not peer-reviewed) · Zenodo, 2026

DOI: 10.5281/zenodo.20760399

Unified Field Theory · General Relativity · Gauge Theory · Madelung Transform

### A Physics-Informed Neural Network (PINN) Approach for Soil-Pile Interaction

Conference Paper · COMPDYN 2023

DOI: 10.7712/120123.10610.20582

PINNs · PyTorch · Sturm-Liouville · Scientific ML

### Testing Quantum Computers with the Protocol of Quantum State Matching

Research Report · Wigner Research Center, 2022

IBM Quantum · Entanglement · QKD · Error Mitigation

## THESES & COURSE PROJECTS

### Hybrid QML for Protein Folding — VQE vs QAOA on IBM Hardware

MSc Thesis · NTUA, 2024

VQE · QAOA · IBM Quantum · PennyLane · Noise Mitigation

### Dynamical Decoupling on Quantum Encoded States

BSc Thesis · University of Patras, 2021 · Grade: 10/10

Dynamical Decoupling · Quantum Error Correction · Decoherence

### Depression Detection from Actigraph Biosensor Data

MSc Course Project · NTUA, 2022

1D-CNN · XGBoost · Explainable AI · Python

### NoobCash — Blockchain & Cryptocurrency Implementation

MSc Course Project · NTUA, 2022

Blockchain · Distributed Systems · P2P · Proof-of-Work

## CERTIFICATIONS

AI Problem Solving & Advanced Estimation Algorithms — Aristotle CDTP, Jun 2023 (ID: GR-DT 0007963) · Introduction to AI & Prediction/Estimation Algorithms — NTUA, Jun 2023 · Neural Networks and Deep Learning — DeepLearning.AI / Coursera, Oct 2022 · Supervised Learning with scikit-learn, Data Manipulation with pandas, Introduction to Data Engineering — DataCamp, 2022–2023

## AWARDS & DISTINCTIONS

Prachi J. Vakharia Global Quantum Scholarship · 2023

National University Entrance Exams (Πανελληνίες) · 18,728 pts · Mathematics 19.3/20 (top 1%) · Physics 19.7/20

Hellenic Mathematical Society — Archimedes Competition · 3rd stage (Archimedes level)

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