

DIMITRIOS THANOS

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PERSONAL

Citizenship: *U.S.A. & Greece*

EDUCATION

Leiden University, Netherlands *1st of May 2022 - current*
PhD on Quantum Algorithms & Formal methods

University of Western Ontario, Canada *1 September 2021 - 30 April 2022*
Postgraduate student in mathematics (transferred to PhD at Leiden before the third term)

National and Kapodistrian University of Athens, Greece *17 October 2017 - 8 April 2021*
Msc on Pure Mathematics

University of the Aegean, Greece *1 September 2012 - 13 October 2017*
Mathematics (Bsc)

THESES

• **Quantum algorithms & Formal methods for quantum computing (PhD, ongoing)**

Supervised by Alfons Laarman & Marcello Bonsangue

• **Finiteness Conditions in Cohomology of Groups (Msc)**

Supervised by Emmanouil Ioannis

• **Cohomology of Groups (Bsc)**

Supervised by Stratos Prassidis

RESEARCH ASSISTANT/INTERNSHIP

• **European Space Agency**

At the Advanced Concepts Team (at ESTEC) for the project “Consequences of the maximum principle in General Relativity”, five months. Using concepts from Differential Geometry and Optimal Control Theory to optimize certain trajectories around rotating (Kerr) black holes. Main programming language used was Python.

• **National Centre for Scientific Research “DEMOKRITOS”**

At the “Statistical Mechanics and Complex Dynamical Systems” laboratory, under the supervision of A.Provata. Started as part of a 2-month undergraduate internship and collaborated until publication of results. Used C/C++ extensively. Duties included: producing research, reviewing for journals.

TEACHING

• **“Software Verification”, TA, MSc Foundations of Computing, Leiden University**
Years 2022–2023 and 2023–2024 (2nd semester)

• **TA “Software Development”, TA, BSc Computer Science, Leiden University**
Years 2023–2024, 2024–2025, and 2025–2026 (1st semester)

- **Supervisor of the student project “*Optimizing Stabilizer Quantum Circuits via Minimal Paths on Cayley Graphs*”**

A group of five MSc students in Quantum Information Science & Technology (OTP course in collaboration with Delft University)

- **Daily supervisor for the thesis of Matei Canavea: “*Quantum Convolutional Neural Networks (QCNN) in Symbolic Simulation*”**

Ongoing

- **“Calculus 1000A” at the University of Western Ontario**

Presenting tutorials weekly and grading (2021)

- **“Complex Analysis II”, Tutorials, Bsc in Mathematics, NKUA**

Tutorials for part of the semester 2018-2019 (2nd semester)

- **“Math Modeling” at Anatolia College, CTY-Greece**

In collaboration with Johns Hopkins University (Summer 2018)

PRESENTATIONS (TALKS / POSTERS)

▷ ATVA 2023

“Fast Equivalence Checking of Quantum Circuits of Clifford Gates”

▷ iFM 2023 PhD Symposium

“Accelerating Formal Methods for Quantum Circuit Compilation”

▷ TACAS 2025

“Parallel Equivalence Checking of Stabilizer Quantum Circuits on GPUs”

▷ AQIS25

“Quantum Algorithms for Magic Square Diophantine Equations”

▷ Highlights 2025

“Parallel Equivalence Checking of Stabilizer Quantum Circuits on GPUs”

▷ Informal talks / seminars

PUBLICATIONS/PREPRINTS

- **“*Fast Equivalence Checking of Quantum Circuits of Clifford Gates*”**

Dimitrios Thanos, T. Coopmans, A. Laarman

ATVA 2023, LNCS 14216, Springer (2023).

https://doi.org/10.1007/978-3-031-45332-8_10

- **“*Quantum Algorithms for Magic Square Diophantine Equations*”**

Dimitrios Thanos, M. Bonsangue, A. Laarman

to appear.

- **“*Parallel Equivalence Checking of Stabilizer Quantum Circuits on GPUs*”**

M. Osama, Dimitrios Thanos, A. Laarman

TACAS 2025, LNCS 15698, Springer (2025).

https://doi.org/10.1007/978-3-031-90660-2_6

- ***GPU-Accelerated Quantum Simulation of Stabilizer Circuits***

M. Osama, Dimitrios Thanos, A. Laarman

arXiv:2603.14641 (2026).

<https://doi.org/10.48550/arXiv.2603.14641>

- ***“Automated Reasoning in Quantum Circuit Compilation”***

Dimitrios Thanos, A. Villoria, S. Brand, A. Quist, J. Mei, T. Coopmans, A. Laarman

SPIN 2024 (ETAPS 2024), Springer, pp. 106–134 (2024).

https://doi.org/10.1007/978-3-031-66149-5_6

- ***“Accelerating Formal Methods for Quantum Circuit Compilation”***

Dimitrios Thanos, A. Laarman

PhD Symposium iFM 2023, extended abstract

- ***“Quantifying local randomness in human DNA and RNA sequences using Erdős motifs”***

W. Li, Dimitrios Thanos, A. Provata

Journal of Theoretical Biology, 461, pp. 41–50 (2019).

<https://doi.org/10.1016/j.jtbi.2018.09.031>

- ***“Entropic Fluctuations in DNA sequences”***

Dimitrios Thanos, W. Li and A. Provata

Physica A, 493, pp. 444–457 (2018).

<https://doi.org/10.1016/j.physa.2017.11.119>

SUMMERSCHOOLS/WORKSHOPS

- Summer School in Mathematics, Institute of Mathematics, Eötvös Loránd University (ELTE), “Algorithms”, Budapest, Hungary, June 23 – June 27, 2025
- IPA Fall Days 2024 “Models for constructing software”, November 2024
- IPA Fall Days 2022 “Scalable and Versatile Software Analytics: ML and NLP to the Fore”
- “Quantum Training Days” by Quantum Software Consortium, October 2022
- IPA workshop “Algorithms, Complexity, and Security”, October 2023
- All general assemblies of the Quantum Software Consortium (QSC) from 2022 to 2025

CONFERENCES ATTENDED

- Automated Technology for Verification and Analysis (ATVA 2023)
- Model Checking Software: SPIN 2024 [ETAPS24]
- Tools and Algorithms for the Construction and Analysis of Systems (TACAS 2025)
- Asian Quantum Information Science Conference (AQIS25)
- Highlights 2025
- 8th Summer School in Operator Theory, University of Athens
- 10th Panhellenic Logic Symposium, University of the Aegean (organ. assistance)
- First Congress of Greek Mathematicians FCGM-2018
- 5th Summer School in Operator Theory, University of Athens

- Analysis in Athens [2017], University of Athens
- 25th Summer School-Conference on "Dynamical Systems & Complexity" NCSR D (Co-organized)
- 50th & 51th Summer School of NCSR "Demokritos"
- 5th Ph.D. School-Conference on "Mathematical Modeling of Complex Systems" (University of Patra)
(and other)

AWARDS

Excellence Award (2017): Awarded from University of Aegean to undergraduates for excellence in research, accompanied by a prize of 1500 €.

ACADEMIC SERVICE

Reviewed multiple papers for journals and conferences both formally and informally.

OTHER / HOBBIES

Highest soloist Diploma on Classical Guitar.