Singh Alexander[1] – Curriculum Vitae

Address	4, Aischilou Str., Kantza, Pallini	**Github**	https://github.com/wintershammer
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Studies

2017- National and Kapodistrian University of Athens, National Technical University of Athens - Graduate Program In Algorithms, Logic, and Discrete Mathematics.

2013-2017 Ionian Universiy - Department of Informatics (First class honours, Ranked first in class).

Thesis Project: Design and Implementation of Qumin, a Quantum Programming Language.

Publications

- Towards an Algebraic Cost Model for Graph Operators. Singh, A.; Tsoumakos, D. International Workshop on Algorithmic Aspects of Cloud Computing. Springer, Cham, 2017.

- QM automata - A new class of restricted quantum membrane automata. Giannakis, K.; Singh, A.; Kastampolidou, K.; Papalitsas, C.; and Andronikos, T. In GeNeDis 2016 (pp. 193-204). Springer, Cham.

- Methods and Patterns for User-friendly Quantum Programming. Singh, A.; Giannakis, K.; Kastampolidou, K.; and Andronikos, T. In GeNeDis 2016 (pp. 201-210). Springer, Cham.

- Dominant Strategies of Quantum Games on Quantum Periodic Automata. Giannakis, K.; Papalitsas, C.; Kastampolidou, K.; Singh, A.; and Andronikos, T. Computation, 3(4): 586–599. 2015.

- Novel Methods of Programming in Quantum Computing Systems. Singh, A.; and Kastampolidou, K. In 2nd Student Conference, pages 417–430, 2015. University of Macedonia

- Schrödinger's Vote: Social, Economic, and Political Aspects of Quantum Games. Kastampolidou, K.; and Singh, A. In 2nd Student Conference, pages 47–48, 2015. University of Macedonia

Professional and Academic Experience

- **Professional**

  - *Intership, 2015-2016* - Interned as part of the intership program of the Ionian University, fulfilling programming and software development duties.

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[1]My name, originally in Greek, is officially transliterated in Latin characters, as per the Greek ELOT standards, as Singk Alexandros. As is customary in Greece, this transliteration is what is listed in all official documents, including academic records and my CPE certificate. Nonetheless, in non-legal/non-formal documents, including academic publications, I prefer to render my name in its translated form as Singh Alexandros.

- **Academic**

  - *Computer Programming Lab, 2016* - Taught programming (in C++), oversaw students and graded exercises.
  - *Experience in the Computing Systems Laboratory of the Department of Electrical and Computer Engineering, National Technical University of Athens, Summer of 2016* - Visited and made use of the lab's equipment (clusters) for simulations related to quantum walks on (directed) graphs.
  - *Intro To Quantum Programming Workshop, May 2016* - Hosted the first student's workshop on quantum computation and programming in the Ionian University.
  - *Theory of Computation Lab, 2016* - Helped students pick their report subjects, assisted in supervising students.
  - *Quantum Computation Lab, 2016* - Helped students pick their report subjects, assisted in supervising students.

- **Programming and Informatics-Related Skills**

  - Python, C, C++, Java, Lisp/Scheme.
  - Agda
  - SQL
  - Various parser generators and frameworks.
  - *git* - Source version control.
  - *LATEX* - Typesetting.
  - *Maple, SageMath, Mathematica, Matlab* - Symbolic and numerical computation.

Interests

Discrete Mathematics, especially (structural) graph theory and combinatorics.

Type theory, logic, and languages, especially those applicable to quantum computation, such as fragments of linear logic. I am especially interested in applications of the aforementioned to the development of quantum programming languages - see also my experimental quantum programming language project Qumin, which can be found in my github page, under https://github.com/wintershammer/QImp.

Foundations of Quantum Computing, including quantum automata, categorical formulations in terms of (symmetric, monoidal) categories, coalgebraic models.

Languages

- **Greek**

- Native speaker

- **English**

- Cambridge Certificate of Proficiency in English (CPE)