

Panagiotis (Panos) Promponas

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Education

Ph.D. in Electrical & Computer Engineering

Yale University (2020-2026)

M.S., M.Phil. in Electrical & Computer Engineering en route (Grade Honours)

Diploma in Electrical & Computer Engineering

Grade 8.78/10.00

National Technical University of Athens (2013-2019)

Specialization: Computer Science, Mathematics and Networks (Grade 9.55/10.00)

Experience

Graduate Research Assistant

Aug 2020 - Present

Yale Institute for Network Science & Center for Quantum Networks

- Developed scheduling and resource-allocation algorithms for quantum entanglement networks, building mathematical models of different switch architectures to analyze rate-fidelity trade-offs and identify high-throughput operating regimes.
- Modeled and analyzed large-scale communication networks, including sectorized wireless and sliced networks, designing frameworks that enlarge the throughput region, improve routing efficiency, and support incentive-compatible resource allocation.

Applied Scientist Intern

Aug 2024 - Feb 2025

Amazon

- Designed a queueing-theoretic framework and digital-twin simulator for Amazon's trailer operations, modeling facilities as a network of queues to optimize control policies and reduce trailer leasing and operating costs.

PhD Research Intern

Jul 2024 - Aug 2024

Cisco Systems

- Designed a measurement-based distributed quantum computing framework that compiles quantum algorithms into two-qubit gates and measurements while minimizing network communication cost and required quantum memories.

PhD Research Intern

May 2023 - Aug 2023

Cisco Systems

- Developed a gate-based distributed quantum computing compiler that takes a quantum circuit as input and translates it into physical operations native to multiple QPUs, jointly optimizing entanglement generation, routing, and teleportation to minimize expected execution time.

Graduate Teaching Fellow

Jan 2022 - May 2022

EENG 310: Signals and Systems, Yale University

Research Assistant

April 2019 - August 2020

Network Management and Optimal Design Laboratory,

National Technical University of Athens

- Modeled multi-user systems that share a common pool of resources using satisfaction games, introduced the *minimum* efficient satisfaction equilibrium, and designed distributed dynamics that provably converge to it and outperform Nash equilibria in common-pool and wireless resource-allocation use cases.

Skills

Networks: Quantum networks, distributed quantum computing, quantum network control, network optimization, resource allocation.

Optimization & ML: Mathematical modeling, algorithmic design, stochastic/queueing optimization, reinforcement learning, game theory, approximation & heuristic algorithms.

Programming: Python, Java, C/C++, R, Matlab, Julia.

Academic Service

Reviewer: IEEE JSAC, IEEE/ACM TON, IEEE TCOM, IEEE TQE, IEEE Communications Magazine, WiOpt, MILCOM, SPAWC, etc.

Honors & Awards

Onassis Foundation Scholarship for graduate studies in Electrical Engineering (2023-2026).

A.G. Leventis Foundation Scholarship for graduate studies in Electrical Engineering (2021-2024).

Bodossaki Foundation Scholarship for graduate studies in Electrical Engineering (2021-2025).

Gerondelis Foundation Award for Academic Excellence (2020-2021).

Special Account for Research Funding (E.L.K.E.) of NTUA Scholarship for Academic Excellence (2019-2020).

Space Hellas "Dimitris Manolopoulos" Scholarship for Academic Excellence (Dec. 2019).

Best Paper Award in the 12th IFIP Wireless and Mobile Networking Conference (WMNC '19) for the paper "Redesigning Resource Management in Wireless Networks based on Games in Satisfaction Form," (Sept. 2019).

3x NTUA Thomaidion Awards for three publications on satisfaction equilibria and wireless resource management (2019-2022).

Conference Travel Grants for IEEE INFOCOM '23, IFIP Networking '23, IEEE ICC '25.

Languages

- **Greek** - Native
- **English** - Fluent (C2; Certificate of Proficiency, Univ. of Michigan)

Selected Publications

Full publication list available on my [Google Scholar](#).

Quantum Networks

1. **Promponas, P.**, Bacciottini, L., Polakos, P., Vardoyan G., Towsley, T., & Tassiulas, L. [Rate-Fidelity Trade-offs in All-Photonic and Memory-Equipped Quantum Switches](#). International Conference on Quantum Communications, Networking, and Computing (QCNC 2026).
2. **Promponas, P.**, Mudvari, A., Della Chiesa, L., Polakos P., Samuel, L., & Tassiulas, L. [Compiler for Distributed Quantum Computing: a Reinforcement Learning Approach](#). 2025 IEEE International Conference on Communications (ICC '25).
3. **Promponas, P.**, Valls, V., & Tassiulas, L. [Maximizing Entanglement Rates via Efficient Memory Management](#)

in [Flexible Quantum Switches](#). In IEEE Journal on Selected Areas in Communications Special Issue on "The Quantum Internet: principles, protocols, and architectures"

4. Valls, V., **Promponas, P.**, & Tassiulas, L. [A Brief Introduction to Quantum Network Control](#). IEEE Communications Magazine.
5. Valls, V., **Promponas, P.**, & Tassiulas, L. [On the Capacity of the Quantum Switch with and without Entanglement Decoherence](#). IEEE Communications Letters.
6. **Promponas, P.**, Valls, V., & Tassiulas, L. [Quantum Switch Scheduling for Information Qubits](#). Workshop on Quantum Systems and Computation, SIGMETRICS '23.
7. **Promponas, P.**, Valls, V., & Tassiulas, L. [Full Exploitation of Limited Memory in Quantum Entanglement Switching](#). In 2023 IFIP Networking.

Classical Network Control & Optimization.....

1. **Promponas, P.**, Chen, T., & Tassiulas, L. [On the Optimization and Stability of Sectorized Wireless Networks](#). IEEE Transactions on Networking.
2. **Promponas, P.**, Pelekis, C., Tsiropoulou, E. E., & Papavassiliou, S. [Risk-Aware Satisfaction Equilibria in Resource Sharing Games under the Fragility of the Commons](#). IEEE Transactions on Automatic Control.
3. **Promponas, P.**, Chen, T., & Tassiulas, L. [Optimizing Sectorized Wireless Networks: Model, Analysis, and Algorithm](#). In 24th International Symposium on Theory, Algorithmic Foundations, and Protocol Design for Mobile Networks and Mobile Computing (MobiHoc '23)
4. **Promponas, P.** & Tassiulas, L. [Network Slicing: Market Mechanism and Competitive Equilibria](#). In 2023 IEEE Computer and Communications Societies (INFOCOM '23)
5. **Promponas, P.**, Pelekis, C., Tsiropoulou, E. E., & Papavassiliou, S. [Games in Normal and Satisfaction Form for Efficient Transmission Power Allocation under Dual 5G Wireless Multiple Access Paradigm](#). IEEE/ACM Transactions on Networking.
6. **Promponas, P.**, Tsiropoulou, E. E., & Papavassiliou, S. [Rethinking Power Control in Wireless Networks: The Perspective of Satisfaction Equilibrium](#) IEEE Transactions on Control of Network Systems (CONES).
7. Papavassiliou, S., Tsiropoulou, E. E., **Promponas, P.**, & Vamvakas, P. [A Paradigm Shift Toward Satisfaction, Realism and Efficiency in Wireless Networks Resource Sharing](#). IEEE Network.

Graph Representation Learning.....

1. Nakis, N.*, **Promponas, P.***, Tsirkas, K., Mamali, K., Makri, E., Tassiulas, L., & Christakis, N. A. [Rank Is Not Capacity: Spectral Occupancy for Latent Graph Models](#). In Advances in Neural Information Processing Systems (NeurIPS 2026). (*Equal contribution.)
2. Nakis, N., Kosma, C., **Promponas, P.**, Chatzianastasis, M., & Nikolentzos, G. [Aitchison Embeddings for Learning Compositional Graph Representations](#). In 43rd International Conference on Machine Learning (ICML 2026).
3. Nakis, N., Kosma, C., **Promponas, P.**, Chatzianastasis, M., & Nikolentzos, G. [Archetypal Graph Generative Models: Explainable and Identifiable Communities via Anchor-Dominant Convex Hulls](#). In 29th International Conference on Artificial Intelligence and Statistics (AISTATS 2026), **Spotlight**.