IOANNIS VLACHOS

PhD student in Computer Science

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EDUCATION

PhD in Computer Science
AUEB & Archimedes, Athena RC

Oct 2023 – present · Athens

Supervisors: George Christodoulou and Alkmini Sgouritsa. Research in algorithmic game theory, mechanism design, learning-augmented algorithms, and communication complexity.

MSc in Data Science and Machine Learning
National Technical University of Athens

Oct 2020 – Oct 2022

Grade: 9.28/10; 90 ECTS. Thesis: Multi-view neural networks for object classification.

Diploma in Electrical and Computer Engineering
National Technical University of Athens

Sept 2015 – Oct 2020

Grade: 9.11/10. Thesis: Deep Machine Learning Techniques on medical image analysis and COVID-19 diagnosis. Supervisor: Stefanos Kollias.

INDUSTRY EXPERIENCE

Computer Vision and ML / R&D / C++ Engineer
Inos / Grenzebach Hellas

July 2021 – Sept 2023 · Athens

- Developed deep-learning models for anomaly detection in 2D images.
- Worked on geometric methods for 2D/3D gap-and-flush measurements.
- Developed bin-picking algorithms for scene clustering, object detection, and pose estimation.
- Worked on point-cloud defect detection and 3D classification.

PROJECTS

Lexicode
Android word-riddle game

Greek and English dictionary-based puzzles, daily challenges, and multiplayer play. Built with Kotlin and Jetpack Compose. Google Play

OutRecom
Research code for our NeurIPS 2024 paper

Implemented and evaluated facility-location mechanisms with predictions on real-world datasets, with experiment scripts and plots supporting our paper's results. GitHub

TECHNICAL SKILLS

Languages

C/C++ · Python · Java

ML / Computer vision

PyTorch · OpenCV · NumPy · pandas · scikit-learn · TensorFlow

Development / Tools

Linux · Git · LaTeX

LANGUAGES

English – fluent
French – B2

ACHIEVEMENTS

Mathematics competitions
Second awards in the 75th Greek National Student Mathematics Competition *Euclid* and the 29th Greek National Student Mathematics Olympiad *Archimedes*.

EUSO 2014
Second award at the 12th European Union Science Olympiad, in a three-member team.

Admission to NTUA
Highest score in my school: 19.493/20. Recognized by Eurobank, the Hellenic Navy, and the Ministry of Education.

Euroscola: Selected to participate in the European Parliament programme (2013).

Student award: Best student in the first cycle of secondary school, Mons, Belgium (2011).

BEYOND WORK

Football · Chess · Classical guitar

Check out my compositions.

PUBLICATIONS AND PREPRINTS

- **Learning-Augmented Coordination Mechanisms**.
  G. Christodoulou, V. Christoforidis, A. Sgouritsa, and I. **Vlachos**.
  NeurIPS 2026 (accepted). Paper.
- **Improving the Price of Anarchy via Predictions in Parallel-Link Networks**.
  G. Christodoulou, V. Christoforidis, A. Sgouritsa, and I. **Vlachos**.
  The ACM Web Conference (WWW) 2026. Paper.
- **The Communication Complexity of Combinatorial Auctions in Graphs**.
  G. Christodoulou, E. Koutsoupias, A. Kovács, and I. **Vlachos**.
  STACS 2026. Paper.
- **Mechanism Design Augmented with Output Advice**.
  G. Christodoulou, A. Sgouritsa, and I. **Vlachos**.
  NeurIPS 2024 (Spotlight). Paper.
- **Transparent Adaptation in Deep Medical Image Diagnosis**.
  D. Kollias, Y. **Vlaxos**, M. Seferis, I. Kollia, L. Sukissian, J. Wingate, and S. Kollias.
  TAILOR 2020, revised selected papers 2021. Paper.
- **Deep Transparent Prediction through Latent Representation Analysis**.
  D. Kollias, N. Bouas, Y. **Vlaxos**, V. Brillakis, M. Seferis, I. Kollia, L. Sukissian, J. Wingate, and S. Kollias.
  Preprint, arXiv:2009.07044, 2020. Paper.

TEACHING

Athens University of Economics and Business

Game and Decision Theory

Teaching assistant

2024-2027

Introduction to Computer Science

Lab assistant

2023-2025

Data Structures

Lab assistant

2025-2027

PRESENTATIONS

The Communication Complexity of Combinatorial Auctions in Graphs

STACS 2026 March 2026
Grenoble, France

ACAC 2026 August 2026
National Technical University of Athens, Greece

Slides

Mechanism Design Augmented with Output Advice

ACAC 2024 August 2024
Athens University of Economics and Business, Greece

Slides