

Panagiotis Repouskos

RESEARCH AND DEVELOPMENT SOFTWARE ENGINEER · ATHENA RC, INTRALOT

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Education

Department of Informatics and Telecommunications, University of Athens

Athens, Greece

MASTER'S DEGREE, COMPUTER SCIENCE

February 2023

Thesis: Sampling methods, Spectrahedra and Convex Optimization, Supervisor: Ioannis Emiris

Department of Informatics and Telecommunications, University of Athens

Athens, Greece

BACHELOR'S DEGREE, COMPUTER SCIENCE

June 2018

Thesis: The Dataflow Computational Model and its Evolution, Supervisor: Panagiotis Rondogiannis

Experience

Athena Research and Innovation Center

Athens, Greece

RESEARCH & DEVELOPMENT SOFTWARE ENGINEER

Oct. 2023 - Today

Solve a PDE via the finite differences method, on CPU and GPU.

- Formulate problem
- Write code for CPU
- Write code for GPU
- Benchmarks

Skills: C++, CUDA, Linear Systems

Intralot

Athens, Greece

C++ SOFTWARE ENGINEER

Feb. 2023 - Today

Part of the team that develops the core product of Intralot, the LOTOS 10 ecosystem.

- developing new features
- debugging and optimizing code
- testing

Skills: C++, MySQL, Kubernetes, Boost, Multithreading

Athena Research and Innovation Center

Athens, Greece

RESEARCH & DEVELOPMENT SOFTWARE ENGINEER

Jul. 2022 - Oct. 2023

Project RANWALK (Random walks for integrated circuit design), financed by the Research-Innovate-Create program (Greek Ministry of Development). The partners consist of HELIC / ANSYS Hellas (coord.), U Patras and Athena RC.

- introduce mechanical learning to circuits design
- study geometric algorithms
- lead team to build C++ prototype for Voronoi Skeleton

Skills: C++, Voronoi, Nearest Neighbor Problem, Geometric Data Structures

Irida Detection S.A.

Athens, Greece

TECHNICAL DIRECTOR

Aug. 2022 - Current

Responsible for the software of project Zephyrus, a Bird Detection and Collision Avoidance system, aiming to protect the avifauna in the vicinity of Wind Turbine Generators.

- introduced ticketing tool to coordinate with team members and external partners
- defined testing strategy, built simulation scenarios and automated testing
- coordinate with Product Manager about customer demands
- design features and coordinate with team members for respective tasks
- develop and test new features
- close communication with Operations Manager for daily systems check

Skills: C++, Python, Mysql, Jenkins, Linux, R&D Management

Software Competitiveness International S.A.

Athens, Greece

C++ SOFTWARE ENGINEER

Sep. 2021 - Aug. 2022

Work as an external partner on software in the automotive industry (infotainment, cloud connection, diagnostics)

- daily meetings, coordinate with the Technical Manager for tasks
- work according to ASPICE level 3 standards
- develop new features, write unit tests, documentation
- debugging and bug analysis

Skills: C++, gMock, Jira, Jenkins, Gitlab, ASPICE

Athena Research and Innovation Center

RESEARCH & DEVELOPMENT SOFTWARE ENGINEER

“GeCoInt_2021B” - Geometric Computations for the design of integrated circuits

- Optimize data structures for real world data
- Provide benchmarks

Skills: C++, Geometric Algorithms, Geometric Data Structures, Nearest Neighbor Problem

Athens, Greece

Jan. 2022 - Feb. 2022

Hellenic Statistical Authority (ELSTAT)

CENSUS SECTOR LEADER

- Conduct buildings census
- Coordinate enumerators for people census

Athens, Greece

Aug. 2021 - Dec. 2021

Athena Research and Innovation Center

RESEARCH & DEVELOPMENT SOFTWARE ENGINEER

“GeoLearn” - Geometric Learning for the representation and design of complex shapes

- Study geometric algorithms and data structures for the Nearest Neighbor problem
- Propose acceleration heuristics for existing software
- Implement a C++ prototype to prove efficiency of proposed heuristics

Skills: C++, Geometric Algorithms, Geometric Data Structures, Nearest Neighbor Problem

Athens, Greece

Jun. 2021 - Sep. 2021

Greek Army

PRIVATE

Compulsory military service!

Athens, Greece

Jul. 2020 - Apr. 2021

Google Summer of Code 2020

MENTOR / CONTRIBUTOR

- **ORGANIZATION:** GeomScale
- **ROLE:** Provide code optimization and documentation. Mainly deal with linear algebra problems, especially polynomial eigenvalue problems.

Athens, Greece

Summer 2020

Google Summer of Code 2019

INTERN

- **PROJECT:** Sampling Methods for Convex Optimization
- **ORGANIZATION:** R Project for Statistical Computing
- **MENTORS:** Dr Vissarion Fisikopoulos, Dr, Elias Tsigaridas
- **GOAL:** Implement in C++ randomized algorithms, which make use of sampling methods to solve linear and semidefinite programs. Last, build an interface to expose the developed methods in R language.
- **URL:** <https://panagiotisrep.github.io/gsoc2019/gsoc2019>

Athens, Greece

Summer 2019

Department of Informatics and Telecommunications, University of Athens

TEACHING ASSISTANT, AS BSC AND MSC STUDENT

- **THEORY OF COMPUTATION**, 2017-2018, professor Panagiotis Rondogiannis.
- **PRINCIPLES OF PROGRAMMING LANGUAGES**, 2017-2018, professor Panagiotis Rondogiannis.
- **ALGORITHMS AND COMPLEXITY**, 2017-2018, professor Misirlis Nikolaos
- **THEORY OF COMPUTATION**, 2018-2019, professor Panagiotis Rondogiannis
- **PRINCIPLES OF PROGRAMMING LANGUAGES**, 2018-2019, professor Panagiotis Rondogiannis
- **LABORATORY INSTRUCTOR AT INTRODUCTION TO PROGRAMMING**, 2018-2019, professor Stamatopoulos Panagiotis

Athens, Greece

Software

GeomScale

CONTRIBUTOR

2020

GeomScale is an open-source C++ software that offers practical volume computation and sampling in high dimensions.

Git: https://github.com/GeomScale/volume_approximation

Contributions:

- Use the Eigen library for linear algebra operations. It offers a speedup in volume computation and sampling of a factor of at least 2, depending on the algorithm.
- Provide support for spectrahedra; previously only polyhedra were supported.
- Implement a randomized algorithm for semidefinite programming.

Publications

GeoCluster: A latent variable generative model for continuous space geometric clustering

Minas Dioletis, Ioannis Z. Emiris, George Ioannakis, Evanthis Papadopoulou, Thomas Pappas, Panagiotis Repouskos, et al.

Efficient sampling in spectrahedra and volume approximation

Apostolos Chalkis, Ioannis Emiris, Vissarion Fisikopoulos, Panagiotis Repouskos, Elias Tsigaridas
Linear Algebra and its Applications, 2022, 648, pp.205-232

Sampling the feasible sets of SDPs and volume approximation

Apostolos Chalkis, Vissarion Fisikopoulos, Panagiotis Repouskos, and Elias Tsigaridas
ACM Commun. Comput. Algebra 54, 3 (September 2020), 114–118

Presentations

Sampling Methods for Convex Optimization

14TH ATHENS COLLOQUIUM ON ALGORITHMS AND COMPLEXITY (ACAC 19)

Athens, Greece
Aug. 2019

Volunteer Experience

Municipality of Elefsina

VOLUNTEER TEACHING

Elefsina, Greece
Sep. 2018 - May 2019

Teaching high school math, in accordance to Municipality of Elefsina’s program got gratuitous cram school services.

Skills

Industry Knowledge	Parallel Programming		Linear Algebra Software & Libraries
	Scientific Software Algorithms		Object Oriented Programming
	Data Structures		Parallel Algorithms
			Geometric Data Structures
Tools & Technologies	Jira	CPPUnitTests	gMock
	C/C++	Java	Python
	CUDA	Kubernetes	MySQL
	Git	Linux	CMake & Make
Languages	• Greek · Native		
	• English · Proficient User		
	• German, French · Independent User		