

Call for Applicants: Announcement for PhD and Postdoc positions at Archimedes/Athena RC

The Archimedes unit of the Athena Research Center is a vibrant research hub, promoting research on Algorithms, AI, and Data Science. Established in 2022, Archimedes has been collaborating with Greek and foreign universities, as well as with industrial partners, and remains committed to advancing basic and applied research in its supporting disciplines.

Archimedes/Athena RC is inaugurating a Blockchain Technology Lab (BTL) in collaboration with the research group of Input-Output Group (IOG), a world-leading blockchain infrastructure company (<https://www.iog.io/>). During its first year of operation, the BTL will focus on the following agenda:

- **Foundational Research:** The main goal of the BTL is to advance the interplay between data privacy/cryptography, AI, game theory, and blockchain technologies. In particular, there will be a heavy focus on the integration of blockchain technologies into Federated Learning. This is a highly interdisciplinary area and, therefore, the BTL plans to develop expertise in the following three main research areas.
 - **Area 1: Blockchain Technologies.** This involves the further development of decentralised governance, auditability, methodologies for data privacy, and verifiable data provenance mechanisms.
 - **Area 2: Federated Learning (FL) and Synthetic Data.** Among others, this concerns the integration of data privacy and blockchain-based auditability into FL, coupled with FL tools for private data synthesis to improve compliance, privacy, and trust in large-scale AI systems.
 - **Area 3: Game Theory and Incentive Design.** This area will explore pricing schemes, incentives, and monetisation models to support sustainable adoption of privacy-enhancing technologies.
- **Healthcare Applications:** As a proof of concept, the BTL intends to collaborate with healthcare providers in order to demonstrate the applicability of its research to the design of improved diagnostic models. The main plan along this direction will be to establish the principles for next-generation healthcare platforms that combine federated

learning, advanced cryptography, and blockchain technology. Such platforms can enable the creation of highly accurate diagnostic AI models while preserving patient privacy, ensuring data security, and supporting compliant, trust-enhancing data usage and data contribution across healthcare ecosystems.

During the first year, the BTL is planning to have openings for PhD and postdoc positions in accordance with the above agenda. In particular, there will be a call for applications with an initial appointment of 12 months for all positions (with the possibility of extension, to be decided at the end of the first year) for the following:

- 2 PhD fellowships and 1 postdoc position for Area 1 (Blockchain Technologies)
- 2 PhD fellowships and 1 postdoc position for Area 2 (Federated Learning and Synthetic Data)
- 2 PhD fellowships and 1 postdoc position for Area 3 (Game Theory and Incentive Design)

We encourage interested candidates to directly contact the BTL leadership team to apply. In particular, candidates may contact Assistant Professor Spyros Voulgaris (voulgaris@aueb.gr) for Area 1, Professor Minos Garofalakis (minos@athenarc.gr) for Area 2, and Professor Vangelis Markakis (markakis@gmail.com) for Area 3.