

# Antonis Papadimitriou

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CONTACT INFORMATION Computer and Information Sciences Department  
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EDUCATION **University of Pennsylvania,**  
PhD Candidate in Computer and Information Science (4th year). GPA: 3.98/4.0.  
Advisor: Andreas Haeberlen

**University of Athens,**  
M.Sc. in Computer Systems Technology, July 2008. GPA: 9/10.  
Bachelor in Informatics and Telecommunications, June 2005. GPA: 8.7/10.

RESEARCH EXPERIENCE **Research Intern, Intel Labs, Hillsboro, OR** (Summer 2016)  
Mentors: Michael Kounavis, Ken Grewal, Dave Durham.

- Joined a team working on a prospective architectural security feature. Analyzed the security properties of the working implementation of the feature, and proposed a more secure design, with the same performance characteristics.

**Research Intern, Microsoft Research, Bangalore, India** (Summer 2015)  
Mentors: Ranjita Bhagwan, Nishanth Chandran, Ram Ramachandran.

- **Seabed:** Seabed extends Spark to build a scalable processing system for encrypted data. With big data, even the smallest encryption overheads can quickly add up. Seabed's ultimate goal is to support fast queries over terabytes of encrypted data by leveraging novel encryption techniques. (Work in progress.)

**Keywords:** homomorphic encryption, Spark, Protobuf, Java, Scala, C, AES-NI, Azure.

**Research Assistant, University of Pennsylvania, PA, USA** (Fall 2012 - Present)

- **DStress:** DStress is a distributed system for privacy-preserving graph computations. DStress features a tunable privacy parameter  $k$  – as long as no more than  $k$  nodes collude, no useful information about the graph is leaked during processing. For  $k = 20$ , one can use DStress to run algorithms on graphs distributed across 2000 nodes in less than five hours. (Under submission.)

**Keywords:** secure multi-party computation (GMW), differential privacy, Java, C, EC2, OpenSSL.

- **Eunomia:** Eunomia is a static analysis tool that can be used to check whether a network is neutral. Eunomia helps network operators reason about the quality of service that their network delivers to traversing traffic. This information can be used to decide whether a network provides variable performance to traffic belonging to different users or sites. (Work in progress.)

**Keywords:** header space analysis, differential privacy, OpenFlow, Mininet, POX, SGX.

- **VerDP:** VerDP is a data analytics system for sensitive datasets. The unique feature of VerDP is that it provides provable privacy and integrity guarantees: query results protect the privacy of individuals in the dataset and carry a proof of correctness anyone can verify. (EuroSys '15.)

**Keywords:** verifiable computation (Pantry), differential privacy (Fuzz), C, EC2

TEACHING  
EXPERIENCE

**Teaching Assistant, University of Pennsylvania, PA, USA**

- Scalable and Cloud Computing (NETS 212 - Fall 2013), University of Pennsylvania.  
**Keywords:** Javascript, Node.js, AJAX, DynamoDB, Elastic MapReduce, EC2.
- Internet and Web Systems (CIS 555 - Spring 2014), University of Pennsylvania.  
**Keywords:** HTTP, Java, Servlets, XML, Crawling, Hadoop, PageRank, EC2.

GRADUATE  
COURSEWORK

**University of Pennsylvania, PA, USA**

- Machine learning (CIS 520), Algorithms (CIS 502), Software systems (CIS 505), Beyond MapReduce (CIS 800), Software-defined data centers (CIS 800), Cryptography (CIS 800), Theory of computation (CIS 511), Leading technology teams (EAS 591).

**University of Athens, Greece**

- Computer networks, Database systems, Distributed systems, Operating systems, Internet and web systems.

SKILLS

Java, C, Python, Scala.

PUBLICATIONS

- A. Papadimitriou**, R. Bhagwan, N. Chandran, R. Ramjee, A. Haeberlen, H. Singh, A. Modi, S. Badrinarayanan. **Big Data Analytics over Encrypted Datasets with Seabed**. OSDI 16, Savannah, GA, USA, November 2016.
- A. Narayan, A. Feldman, **A. Papadimitriou**, A. Haeberlen. **Verifiable Differential Privacy**. EuroSys 15, Bordeaux, France, April 2015.
- A. Narayan, **A. Papadimitriou**, A. Haeberlen. **Compute Globally, Act Locally: Protecting Federated Systems from Systemic Threats**. HotDep 14, Broomfield, CO, October 2014.
- A. Papadimitriou**, M. Zhao, A. Haeberlen. **Towards Privacy-Preserving Fault Detection**. HotDep 13, Farmington, PA, October 2013.
- F. Le Fessant, **A. Papadimitriou**, A. C. Viana, C. Sengul, and E. Palomar. **A Sinkhole Resilient Protocol for Wireless Sensor Networks: Performance and Security Analysis**. Elsevier Computer Communications. 2012.
- V. Tsetsos, **A. Papadimitriou**, C. Anagnostopoulos and S. Hadjiefthymiades, **Integrating Interactive TV Services and the Web through Semantics**, International Journal On Semantic Web and Information Systems, April, 2010.
- A. Papadimitriou**, Le Fessant F., A. C. Viana and C. Sengul, **Cryptographic Protocols to Fight Sinkhole Attacks on Tree-based Routing in Wireless Sensor Networks**, NPSec 09, Princeton, NJ, USA, October 2009.
- A. Papadimitriou** and A. Delis, **Flash Data Dissemination in Unstructured Peer-to-Peer Networks**, ICPP 2008, Portland, Oregon, USA, September 2008.
- A. Papadimitriou**, C. Anagnostopoulos, V. Tsetsos, S. Paskalis, S. Hadjiefthymiades, **Integrating Semantic Technologies with Interactive Digital TV**, Networked Knowledge and Media: Integrating Knowledge Management, New Media Technologies and Semantic Systems, Springer-Verlag, July 2009, ISBN: 3642021832.
- A. Papadimitriou**, C. Anagnostopoulos, V. Tsetsos, S. Paskalis and S. Hadjiefthymiades, **A Semantics-aware Platform for Interactive TV Services**, I-MEDIA 2007, Graz, Austria, September 2007.