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Ioannis Demertzis

Education

- September 2015 – Present **Ph.D student**, *Electrical & Computer Engineering*, University of Maryland.
Advisor: Assistant Prof. Charalampos (Babis) Papamanthou
- October 2013 – July 2015 **Master of Science**, *Electronic & Computer Engineering*, Technical University of Crete, Chania, Greece.
Research Topic: Privacy Preserving Range Queries in Cloud Computing Environments,
Advisor: Prof. Minos Garofalakis
GPA: 10.0/10.0
- October 2008 – September 2013 **Diploma (5-year program)**, *Electronic & Computer Engineering*, Technical University of Crete, Chania, Greece.
Diploma Thesis: Private Data Analytics in Cloud Computing Environments,
Advisor: Prof. Minos Garofalakis
GPA: 8.67/10.0 (top 2% of ECE 2008 class and **2nd** in graduation year 2012–2013)

Research Interests

- Security & Privacy Cloud & database security, query processing over encrypted data, searchable encryption, oblivious RAMs.
- Big Data Large-scale data management, scalable indexing techniques, querying data streams.

Research & Work Experience

- September 2015 – present **Graduate Research Assistant**, *Conducting research on cloud security and applied cryptography*.
- June 2017 – August 2017 **Research Intern at VISA Research, Palo Alto, USA**, *Conducting research on ORAM-based searchable encryption for databases*, Mentors: Shashank Agrawal and Payman Mohassel.
- October 2013 – August 2015 **Graduate Research Assistant**, *Large Scale Elastic Architecture for Data as a Service (LEADS) project*, supported by the European Commission's Seventh Framework Programme (FP7).
Conducting research oriented towards the algorithmic design and implementation of privacy preserving queries in cloud computing environments, implementing LEADS graphical user interface for query execution.
- October 2014 – January 2015 **Teaching Assistant**, *in Algorithms and Complexity (Fall 2014)*, Prof. Minos Garofalakis.
- June 2013 – September 2013 **Undergraduate Research Assistant**, *Large Scale Elastic Architecture for Data as a Service (LEADS) project*.

Awards & Distinctions

- June 2016 **Outstanding Academic Performance Scholarship**, from Gerondelis Foundation, (Grant \$5,000).
- June 2016 **Travel Grant**, for SIGMOD Conference, (Grant \$1,250).
- September 2015 – August 2016 **Clark School of Engineering Distinguished Graduate Fellowship**, from Department of Electrical and Computer Engineering, University of Maryland (UMD).

March 2015 **Fellowship for doctoral studies**, from *Ecole Polytechnique Fédérale de Lausanne*.

November 2013 **Award of Academic Excellence**, for graduating in 2013 with the **2nd** highest GPA from the School of Electronic & Computer Engineering of the Technical University of Crete, Award by LIMMAT STIFTUNG organization, (Grant 8,000 Euro).

Publications

I. Demertzis, R. Talapatra, C. Papamanthou. Searchable Encryption Revisited: More Efficient Constructions Based on Compression Techniques. (under submission)

I. Demertzis, S. Papadopoulos, O.Papapetrou, A. Deligiannakis, M. Garofalakis, C. Papamanthou. Practical Private Range Search In Depth. **TODS'18** (SIGMOD/PODS'16 Special Issue)

I. Demertzis, D. Papadopoulos, C. Papamanthou. Searchable Encryption with Optimal Locality: Achieving Sublogarithmic Read Efficiency. **IACR'17** (under submission)

I. Demertzis, C.Papamanthou.Fast Searchable Encryption with Tunable Locality. **SIGMOD'17**

I. Demertzis, S. Papadopoulos, O.Papapetrou, A. Deligiannakis, M. Garofalakis, Practical Private Range Search Revisited. **SIGMOD'16** (Selected as one of the **best papers** submitted to the conference and invited to ACM Transactions on Database Systems **TODS**)

Academic Activities

Research Funding

Contributed in proposal writing, *NetApp, Inc. Secure Deduplication and Compression for Big Data* (with Roberto Tamassia, Charalampos Papamanthou) 2016-2017.

Service/Reviewing

External Reviewer: CCS 2016, FC 2018, ICDE 2018, S&P 2018.

Sub-Reviewer: SIGMOD 2016, NDSS 2018.

Graduate Coursework

University of Maryland, College Park

- Mathematical Foundations for Computer Engineering with Professor Uzi Vishkin
- Parallel Algorithms with Professor Uzi Vishkin
- Compilers and Optimization with Professor Rajeev Barua
- Introduction to Cryptography with Professor Jonathan Katz
- Database Management Systems with Professor Amol Deshpande
- Computer Security with Professor Tudor Dumitras

Technical University of Crete

- Processing and Analyzing Big Data (audit) with Professor Minos Garofalakis
- Machine Learning with Professor Michail Lagoudakis
- Computational Geometry with Professor Vassilis Samoladas
- Re-configurable Computing Systems with Professor Apostolos Dollas

Notable Undergraduate Coursework

- Algorithms & Complexity (9.5/10)
- Special Topics on Database Systems (10/10) (graduate course)
- Design, Development and Management of Web Services (9.5/10)*
- Multimedia Data Management (10/10)*
- Data Management and Processing in Sensor Networks (10/10)*
- Parallel and Distributed Computer System Architecture (10/10)*
- Advanced Topics in Databases (9/10)
- Operating Systems (9.5/10)

* Cross-listed graduate course: attended as an undergraduate student but fulfilled graduate requirements.

Technical Skills

- **Programming:** Java, C, nesC, SQL, Matlab, Assembly (MIPS)
- **Environments and Tools:** Hadoop, Spark, Protégé, Lucene library, Jena, flex, bison

References

- **Charalampos (Babis) Papamantou:** (Ph.D Advisor)
Assistant Professor, Department of Electrical and Computer Engineering
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- **Minos Garofalakis:** (Diploma Thesis Advisor, M.Sc. Advisor)
Professor, School of Electronic and Computer Engineering
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- **Antonios Deligiannakis:**
(Diploma & M.Sc. Committee Member, Research Collaborator)
Associate Professor, School of Electronic and Computer Engineering
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- **Stavros Papadopoulos:** (Research Collaborator)
Senior Research Scientist, Intel Labs
Visiting Scientist, MIT CSAIL
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