

# Savvas Savvides

October 3, 2022

EMAIL: [savvas@fortanix.com](mailto:savvas@fortanix.com)

GITHUB: [ssavvides](https://github.com/ssavvides) || SKYPE: [savvas\\_savvides](https://www.skype.com/people/savvas_savvides)

WEBSITE: <https://ssavvides.github.io>

LINKEDIN: <https://www.linkedin.com/in/ssavvides>

---

## Research Interests

My research interests span the areas of information security, applied cryptography, and cloud computing with an emphasis on secure and efficient distributed computations. My recent projects revolve around using trusted execution environments and homomorphic encryption to enable efficient privacy-preserving big-data analytics in untrusted clouds.

## Positions

### Senior Software Engineer

09/2020 - Present

Fortanix, Mountain View, CA, USA (*working remotely* from Nicosia, Cyprus)

*Building the next-generation of cloud computing security, by utilizing privacy-preserving technologies such as Intel SGX and AWS Nitro Enclaves.*

### Scientific Collaborator

09/2022 - Present

European University Cyprus, Nicosia, Cyprus

*Supervisor for both undergraduate and master's students.*

*Instructor for Software Engineering I.*

### Adjunct Researcher

09/2020 - Present

Software Systems group, Università della Svizzera italiana, Lugano, Switzerland

*Conducting research on privacy-enhancing technologies with emphasis on utilizing trusted execution environments and applying homomorphic encryption to distributed big-data analytics.*

### Blockchain Security Engineer

05/2022 - 12/2022

Crypto.com, St. Julian's, Malta

*Contributed in developing a next-generation secure blockchain wallet using secure multi-party computation and Intel SGX.*

### Software Engineer Intern

08/2019 - 12/2019

Oasis Labs, San Francisco, CA, USA

*Built a client in Rust to enable off-chain compute services in the Oasis Labs blockchain network using Intel SGX.*

### Security Research Engineer Intern

05/2018 - 08/2018

Fortanix, Mountain View, CA, USA

*Developed a secure consensus algorithm based on the Raft protocol using Intel SGX.*

### Research Summer Intern

06/2015 - 09/2015

IBM T. J. Watson Research Center, New York, USA

*Research on estimating the execution-time of Apache Spark applications.*

## Education

- Ph.D. in Computer Science**, Purdue University, West Lafayette, IN, USA 08/2020  
Thesis: *Practical Confidentiality-Preserving Data Analytics in Untrusted Clouds*  
Advisor: Patrick Eugster
- M.S. in Computer Science**, New York University, New York City, NY, USA 06/2013  
Thesis: *Analyzing System Call API behavior on different POSIX platforms*  
Advisor: Justin Cappos
- B.S. in Computer Science**, University of Manchester, Manchester, UK 06/2011  
Advisor: Howard Barringer

## Publications

### Journal Articles

- [J1] S. Savvides, S. Kumar, J. Stephen, and P. Eugster. C3PO: Cloud-based Confidentiality-preserving Continuous Query Processing. *ACM Transactions on Privacy and Security (TOPS)*, November 2021.

### Magazine Articles

- [M1] P. Eugster, S. Kumar, S. Savvides, J. Stephen. Ensuring Confidentiality in the Cloud of Things. *IEEE Pervasive Computing – Special Issue - IoT Communication*, Jan/Mar 2019

### Articles in Conference Main Research Tracks

- [C6] S. Savvides, D. Khandelwal, and P. Eugster. Efficient Confidentiality-Preserving Data Analytics over Symmetrically Encrypted Datasets. In *45th International Conference on Very Large Data Bases 2020 (VLDB’20)*, September 2020.
- [C5] D. Ulybyshev, A. Alsalem, B. Bhargava, S. Savvides, G. Mani, and L. Ben-Othmane. Secure data communication in autonomous v2x systems. In *3rd IEEE International Congress on Internet of Things 2018 (ICIOT’18)*, July 2018.
- [C4] S. Savvides, J. Stephen, M. Ardekani, V. Sundaram, P. Eugster. Secure Data Types: A Simple Abstraction for Confidentiality-Preserving Data Analytics. In *8th ACM Symposium on Cloud Computing 2017 (SoCC’17)*, September 2017.
- [C3] M. Hauck, S. Savvides, P. Eugster, M. Mezini and G. Salvaneschi. SecureScala: Scala embedding of secure computations. In *7th ACM Scala Symposium 2016 (SCALA’16)*, October 2016.
- [C2] J. Stephen, S. Savvides, V. Sundaram, M. Ardekani and P. Eugster. STYX: Stream Processing with Trustworthy Cloud-based Execution. In *7th ACM Symposium on Cloud Computing 2016 (SoCC’16)*, September 2016.
- [C1] J. Stephen, S. Savvides, R. Seidel and P. Eugster. Program Analysis for Secure Big Data Processing. In *29th IEEE/ACM International Conference on Automated Software Engineering (ASE’14)*, September 2014.

### Workshop Papers in Proceedings

- [W1] J. Stephen, S. Savvides, R. Seidel and P. Eugster. Practical Confidentiality Preserving Big Data Analysis. In *USENIX Workshop on Hot Topics in Cloud Computing 2014 (HotCloud’14)*, June 2014.

## Patents

- [P1] J. Beekman, S. Savvides, R. Searle, A. Kumar. Confidential Computing Workflows. *US Patent LS Docket No.: 33092.21 (L0021)*, 2021.

## Theses Articles

- [T2] S. Savvides. Practical Confidentiality Preserving Data Analytics in Untrusted Clouds. Ph.D. Thesis, Purdue University, Aug 2020.
- [T1] S. Savvides. Parsing and Analyzing POSIX API behavior on different platforms. Master's Thesis, New York University, Aug 2013.

## Awards, Fellowships, and Honors

<b>Oasis Labs Fellowship</b> Oasis Labs	2019
<b>A. G. Leventis Scholarship</b> A. G. Leventis Foundation	2013 - 2014
<b>“24 Hours of Good, New York Hackathon”, first place</b> Google	2012
<b>Fulbright Scholarship</b> Fulbright - Institute of International Education	2011 - 2013
<b>T.I.P. Grant</b> Graduate School of Arts and Science, New York University	2011 - 2013
<b>Kilburn Final Year Performance Award</b> University of Manchester	2011
<b>Kilburn Scholarship</b> University of Manchester	2008 - 2011
<b>Cyprus State Scholarship</b> Republic of Cyprus	2008 - 2011
<b>14th National Olympiad in Informatics, fourth place</b> Cyprus Computer Society	2006

## Funding and Grants

### Accepted

[G4] Symmetric Homomorphic Encryption for Low-Latency Privacy-Preserving Data Processing <i>Cisco Systems Inc., Cisco Research Grant</i>	
Duration of Funding:	08/2021 - 08/2022
Total Amount of Award:	\$100,000
Role:	Co-PI (PI: Patrick Eugster)
Percentage of funding responsible:	—

- [G3] Efficient Confidentiality-Preserving Data Analytics over Symmetrically Encrypted Datasets  
*AWS Cloud Credits Award for Research*  
 Duration of Funding: 07/2019 - 07/2020  
 Total Amount of Award: \$50,000  
 Role: Co-PI (PI: Patrick Eugster)  
 Percentage of funding responsible: 10%
- [G2] A Methodological Approach to Privacy-Preserving Computation  
*Hasler foundation, Switzerland*  
 Duration of Funding: 3/2020 - 2/2021  
 Total Amount of Award: 50,000 CHF  
 Role: Co-PI (PI: Patrick Eugster)  
 Percentage of funding responsible: –
- [G1] Secure Data Types: A Simple Abstraction for Confidentiality-Preserving Data Analytics  
*AWS Cloud Credits Award for Student Researchers*  
 Duration of Funding: 07/2017 - 07/2018  
 Total Amount of Award: \$5,000  
 Role: PI  
 Percentage of funding responsible: 100%

## Advising

### Current Students

1. Shamiek Mangipudi, Ph.D. student in Computer Science, USI Università della Svizzera italiana, Research Assistant. “A Hybrid Approach to Confidentiality-Preserving Data Analytics”. Co-advised with P. Eugster.

### Graduated Students

1. Darshika Khandelwal, USI Università della Svizzera italiana, Graduate Research Assistant. “Evaluating privacy-preserving TPC-H Queries on Apache Spark”. Mar 2019 - Sep 2019. Co-advised with P. Eugster. Now Software Engineer at Productiv.
2. Davide Trupia, Undergraduate researcher, USI Università della Svizzera italiana. “Evaluating the TPC-H benchmark on AWS NitroEnclaves”. Co-advised with P. Eugster. Now at Tata Consultancy Services Ltd.

## Academic Service

### External Reviewer

1. ACM/IFIP/USENIX International Middleware Conference (Middleware 2019)
2. International Conference on Formal Techniques for Distributed Objects, Components, and Systems (FORTE 2019)
3. ACM/IFIP/USENIX International Middleware Conference (Middleware 2018)
4. ACM International Conference on Distributed and Event-based Systems (DEBS 2018)
5. International Conference on Principles of Distributed Systems (OPODIS 2017)

6. European Conference on Object-Oriented Programming (ECOOP 2017)
7. ACM/IEEE International Conference on Software Engineering (ICSE 2017)
8. ACM Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA 2016)
9. IEEE International Conference on Distributed Computing Systems (ICDCS 2014)

**Departmental Service**

1. Travel Grant Chair, Graduate Student Board, Purdue University (2017-2018)
2. Webmaster, Graduate Student Board, Purdue University (2017-2018)