

E-mail: a.papadimitriou@uop.gr

Mobile: +30 6974892054

Papadimitriou Athanasios

CV

Main Skills:

- **Research Funding – Proposals:**
 - Marie Skłodowska-Curie Individual Fellowship (European) (24 months) as a Post-doctoral Researcher at the Embedded Systems Laboratory, Department of Informatics of the University of Piraeus
Project Description: <https://cordis.europa.eu/project/id/895937>
Project Title: EDA tools for Secure and Reliable High Level Synthesis Implementations
Total Funding: € 165 085,44
- **Organization of International Cyber-security Events:**
 - Competition Coordinator of the European branch of the Cyber Security Awareness Week event (CSAW Europe), organized at ESISAR School of Grenoble INP, in collaboration with the University of New York <https://www.csaw.io/>
 - Organization of CSAW Europe (2018, 2019)
- **Research Skills:**
 - Design and Implementation of digital circuits using FPGA devices
 - Evaluation of Hardware Security and Reliability levels of microprocessors, hardware accelerators and cryptographic implementations (FPGA-based or ASIC-based)
 - Hardware-based countermeasure design to protect microprocessors, hardware accelerators and cryptographic implementations (FPGA-based or ASIC-based) against hardware/software attacks or from the effects of their operation in harsh environments
 - Development of Electronic Design Automation tools for FPGA and ASIC flows
 - Machine Learning in the fields of Hardware Security and Reliability
 - Design, Simulation, and Implementation of Integrated Circuits (IC)
 - Design using High Level Synthesis

Education:

- Docteur de la Communauté Université Grenoble Alpes – PhD degree (Docteur de la Communauté Université Grenoble Alpes – PhD degree) (2016)
Spécialité: Nanoélectronique et Nanotechnologies – Nanoelectronics and Nanotechnologies
LCIS Laboratory (Laboratoire de Conception et d'Intégration des Systèmes), École Doctorale EEATS
French Title: Modélisation au niveau RTL des attaques laser pour l'évaluation des circuits intégrés sécurisés et la conception de contremesures
English Title: RTL Modeling of Laser attacks for Early Evaluation of Secure ICs and Countermeasure Design

- Applied Physics Diploma (Five year degree – MSc equivalent), School of Applied Mathematics and Physics, National Technical University of Athens (2012)

Academic Experience:

- Marie Skłodowska Curie Fellow (Individual Fellowship) – Research project: SecuReHLS (<https://cordis.europa.eu/project/id/895937>) – Post-doctoral Researcher on Hardware Security and Reliability, Embedded Systems Laboratory, University of Piraeus (2020 –)
- Post-doctoral Researcher on Hardware Security and Reliability at the University of Piraeus, Department of Informatics (2019 – 2020)
- Hardware Security Research Engineer & CSAW Europe Competition Coordinator, SACCO Platform, Grenoble Institute of Technology (2018 – 2019)
- Postdoctoral Researcher on Cybersecurity for IoT medical devices at the LCIS Laboratory of Grenoble INP (2017 – 2018)
- Postdoctoral Researcher on Cybersecurity for IoT at CEA - Commissariat à l'énergie atomique et aux énergies alternatives, "Sécurisation énergétiquement efficace de fonctions de sécurité pour l'IoT en technologie FDSOI 28nm" (2016 – 2017)
- Collaborateur Temporaire de Recherche at Grenoble INP (2012 – 2015)
- Research Engineer, NCSR Demokritos, Solid-state Detector Instrumentation Laboratory, Institute of Nuclear and Particle Physics (2009 – 2010)

Articles in International Journals

1. "Design Space Exploration for Ultra-Low Energy and Secure IoT MCUs" Ehsan Aerabi, Milad Bohlouli, Mohammadhasan Ahmadi Livany, Mahdi Fazeli, **Athanasios Papadimitriou**, David Hely, *ACM - Transactions on Embedded Computing Systems (TECS)*, *ACM Transactions on Embedded Computing Systems (TECS)* 19, no. 3 (2020): 1-34., <https://doi.org/10.1145/3384446>
2. "Cross-layer analysis of software fault models and countermeasures against hardware fault attacks in a RISC-V processor" Johan Laurent, Vincent Beroulle, Christophe Deleuze, Florian Pebay-Peyroula, **Athanasios Papadimitriou**, *Microprocessors and Microsystems*, Volume 71, 2019, DOI: [10.1016/j.micpro.2019.102862](https://doi.org/10.1016/j.micpro.2019.102862)
3. "Sensitivity to Laser Fault Injection: CMOS FD-SOI vs. CMOS bulk", Jean-Max Dutertre, Vincent Beroulle, Philippe Candelier, Stephan De Castro, Louis-Barthelemy Faber, Marie-Lise Flottes, Philippe Gendrier, David Hely, Regis Leveugle, Paolo Maistri, Giorgio Di Natale, **Athanasios Papadimitriou** and Bruno Rouzeyre, *IEEE Transactions on Device and Materials Reliability*, Early Access, 2018, DOI: [10.1109/TDMR.2018.2886463](https://doi.org/10.1109/TDMR.2018.2886463)
4. "Analysis of laser-induced errors: RTL fault models versus layout locality characteristics", **Athanasios Papadimitriou**, David Hély, Vincent Beroulle, Paolo Maistri, Regis Leveugle, *Microprocessors and Microsystems*, Volume 47, Part A, Pages 64-73, 2016, DOI: [10.1016/j.micpro.2016.01.018](https://doi.org/10.1016/j.micpro.2016.01.018)
5. "Stack Redundancy to Thwart Return Oriented Programming in Embedded Systems", Cyril Bresch, David Hély, **Athanasios Papadimitriou**, Adrien Michelet-Gignoux, Laurent Amato, Thomas Meyer, *IEEE Embedded Systems Letters*, Volume: 10, Issue: 3, Page(s): 87 – 90, 2018, DOI: [10.1109/LES.2018.2819983](https://doi.org/10.1109/LES.2018.2819983)
6. "Can Algorithm Diversity in Stream Cipher Implementation Thwart (Natural and) Malicious Faults?", Xiaofei Guo, Chenglu Jin, Chi Zhang, **Athanasios Papadimitriou**, David Hély, Ramesh Karri, *IEEE Transactions on Emerging Topics in Computing*, Volume: 4, Issue: 3, Page(s): 363 - 373, 2016, DOI: [10.1109/TETC.2015.2434103](https://doi.org/10.1109/TETC.2015.2434103)

7. "The COCAE Detector: An Instrument for Localization—Identification of Radioactive Sources", C. P. Lambropoulos, T. Aoki, J. Crocco, E. Dieguez, C. Disch, A. Fauler, M. Fiederle, D. Hatzistratis, V. A. Gnatyuk, K. Karafasoulis, L. A. Kosyachenko, S. N. Levytskyi, D. Loukas, O. L. Maslyanchuk, A. Medvids, T. Orphanoudakis, I. Papadakis, **A. Papadimitriou**, K. Papakonstantinou, C. Potiriadis, T. Schulman, V. V. Sklyarchuk, K. Spartiotis, G. Theodoratos, O. I. Vlasenko, V. E. Lashkaryov, K. Zachariadou, E. Zervakis, *IEEE Transactions on Nuclear Science*, Volume: 58 , Issue: 5 , Oct. 2011, DOI: [10.1109/TNS.2011.2162964](https://doi.org/10.1109/TNS.2011.2162964)
8. "Formation of silicon ultra shallow junction by non-melt excimer laser treatment", Florakis A., **Papadimitriou A.**, Chatzipanagiotis N., Misra N., Grigoropoulos C., Tsoukalas D., *Solid-State Electronics*, Volume 54, Issue 9, Pages 903-908, 2010, DOI: [10.1016/j.sse.2010.04.025](https://doi.org/10.1016/j.sse.2010.04.025)

Book Chapters

1. "Laser-Induced Fault Effects in Security-Dedicated Circuits", Vincent Beroulle, Philippe Candelier, Stephan De Castro, Giorgio Di Natale, Jean-Max Dutertre, Marie-Lise Flottes, David Hély, Guillaume Hubert, Regis Leveugle, Feng Lu, Paolo Maistri, **Athanasios Papadimitriou**, Bruno Rouzeyre, Clement Tavernier, Pierre Vanhauwaert, *VLSI-SoC 2014: VLSI-SoC: Internet of Things Foundations pp 220-240 IFIP Advances in Information and Communication Technology book series (IFIPAICT, volume 464)*, 25 November 2015, DOI: [10.1007/978-3-319-25279-7_12](https://doi.org/10.1007/978-3-319-25279-7_12)

Articles in International Conferences

1. "On a Security-oriented Design Framework for Medical IoT Devices: The Hardware Security Perspective", Nomikos, Konstantinos, **Athanasios Papadimitriou**, George Stergiopoulos, Dimitris Koutras, Mihalis Psarakis, and Panayiotis Kotzanikolaou, *In 2020 23rd Euromicro Conference on Digital System Design (DSD)*, pp. 301-308. *IEEE*, 2020, Kranj, Slovenia, DOI: [10.1109/DSD51259.2020.00056](https://doi.org/10.1109/DSD51259.2020.00056)
2. "You can detect but you cannot hide: Fault Assisted Side Channel Analysis on Protected Software-based Block Ciphers.", **Papadimitriou, Athanasios**, Konstantinos Nomikos, Mihalis Psarakis, *In 2020 IEEE International Symposium on Defect and Fault Tolerance in VLSI and Nanotechnology Systems (DFT)*, pp. 1-6. *IEEE*, 2020, Frascati, Italy. DOI: [10.1109/DFT50435.2020.9250870](https://doi.org/10.1109/DFT50435.2020.9250870)
3. "On the Performance of Non-Profiled Differential Deep Learning Attacks against an AES Encryption Algorithm Protected using a Correlated Noise Generation based Hiding Countermeasure", Amir Alipour, **Athanasios Papadimitriou**, Vincent Beroulle, Ehsan Aerabi and David Hely, *Design, Automation & Test in Europe Conference & Exhibition (DATE)* , 09-13 March 2020, Grenoble, France, DOI: [10.23919/DATE48585.2020.9116387](https://doi.org/10.23919/DATE48585.2020.9116387)
4. "On a Low Cost Fault Injection Framework for Security Assessment of Cyber-Physical Systems: Clock Glitch Attacks", Zarha Kazemi, **Athanasios Papadimitriou**, Ioanna Souvatzoglou, Ehsan Aerabi, Mosabbah Mushir Ahmed, David Hely and Vincent Beroulle, *4th International Verification and Security Workshop (IVSW)*, 1-3 July, 2019, Hotel Rodos Palace, Rhodes Island, Greece, DOI: [10.1109/IVSW.2019.8854391](https://doi.org/10.1109/IVSW.2019.8854391)
5. "On a Side Channel and Fault Attack Concurrent Countermeasure Methodology for MCU-based Byte-sliced Cipher Implementations", Ehsan Aerabi, **Athanasios Papadimitriou**, David Hely,) *IEEE 25th International Symposium on On-Line Testing And Robust System Design (IOLTS)*, 1-3 July, 2019, Hotel Rodos Palace, Rhodes Island, Greece, DOI: [10.1109/IOLTS.2019.8854372](https://doi.org/10.1109/IOLTS.2019.8854372)
6. "The case of using CMOS FD-SOI rather than CMOS bulk to harden ICs against laser attacks", Jean-Max Dutertre, ..., **Athanasios Papadimitriou**, ..., *IEEE 24th International Symposium on On-Line Testing And Robust System Design (IOLTS)*, 2-4 July 2018, Platja d'Aro, Spain, DOI: [10.1109/IOLTS.2018.8474230](https://doi.org/10.1109/IOLTS.2018.8474230)

7. "Laser Fault Injection at the CMOS 28 nm Technology Node: an Analysis of the Fault Model", Jean-Max Dutertre, ..., **Athanasios Papadimitriou**, ..., *Workshop on Fault Diagnosis and Tolerance in Cryptography (FDTC)*, 13-13 Sept. 2018, Amsterdam Netherlands, DOI: [10.1109/FDTC.2018.00009](https://doi.org/10.1109/FDTC.2018.00009)
8. "On the Importance of Analysing Microarchitecture for Accurate Software Fault Models", Johan Laurent, ..., **Athanasios Papadimitriou**, *Euromicro Conference on Digital System Design (DSD)*, 29-31 Aug. 2018, Prague Czech Republic, DOI: [10.1109/DSD.2018.00097](https://doi.org/10.1109/DSD.2018.00097)
9. "Hardware Security Evaluation Platform for MCU-Based Connected Devices: Application to Healthcare IoT", Zahra Kazemi, **Athanasios Papadimitriou**, ..., *3rd International Verification and Security Workshop (IVSW)*, 2-4 July 2018, Costa Brava Spain, DOI: [10.1109/IVSW.2018.8494843](https://doi.org/10.1109/IVSW.2018.8494843)
10. "On the development of a new countermeasure based on a laser attack RTL fault model", Charalampos Ananiadis, **Athanasios Papadimitriou**, ..., *Design, Automation & Test in Europe Conference & Exhibition (DATE)*, 14-18 March 2016, Dresden Germany, ISBN: 978-3-9815-3707-9
11. "On fault injections for early security evaluation vs. laser-based attacks", Regis Leveugle, ..., **Athanasios Papadimitriou**, *1st IEEE International Verification and Security Workshop (IVSW)*, 4-6 July 2016, St. Feliu de Guixols, Spain, DOI: [10.1109/IVSW.2016.7566603](https://doi.org/10.1109/IVSW.2016.7566603)
12. "Comparison of RTL Fault Models for the Robustness Evaluation of Aerospace FPGA devices", Vincent Beroulle, ..., **Athanasios Papadimitriou**, *IEEE 22nd International Symposium on On-Line Testing and Robust System Design (IOLTS)*, 4-6 July 2016, Sant Feliu de Guixols Spain, DOI: [10.1109/IOLTS.2016.7604664](https://doi.org/10.1109/IOLTS.2016.7604664)
13. "Validation of RTL laser fault injection model with respect to layout information", Athanasios Papadimitriou, ..., *IEEE International Symposium on Hardware Oriented Security and Trust (HOST)*, 5-7 May 2015, Washington DC USA, DOI: [10.1109/HST.2015.7140241](https://doi.org/10.1109/HST.2015.7140241)
14. "A multiple fault injection methodology based on cone partitioning towards RTL modeling of laser attacks", **Athanasios Papadimitriou**, *Design, Automation & Test in Europe Conference & Exhibition (DATE)*, 24-28 March 2014, Dresden Germany, DOI: [10.7873/DATE.2014.219](https://doi.org/10.7873/DATE.2014.219)
15. "On error models for RTL security evaluations", P. Vanhauwaert, ..., **Athanasios Papadimitriou**, ..., *IEEE International Conference on Design & Technology of Integrated Systems in Nanoscale Era (DTIS)*, 6-8 May 2014, Santorini Greece, DOI: [10.1109/DTIS.2014.6850666](https://doi.org/10.1109/DTIS.2014.6850666)
16. "Laser-induced fault effects in security-dedicated circuits", R. Leveugle..., **Athanasios Papadimitriou**, *22nd International Conference on Very Large Scale Integration (VLSI-Soc)*, 6-8 Oct. 2014, Playa del Carmen Mexico, DOI: [10.1109/VLSI-Soc.2014.7004184](https://doi.org/10.1109/VLSI-Soc.2014.7004184)
17. "Formation of silicon Ultra Shallow Junction by nonmelt excimer laser treatment", Florakis A., **Papadimitriou A.**, Chatzipanagiotis N. and Tsoukalas D., Misra N., and Grigoropoulos C., *Proceedings of the European Solid State Device Research Conference*, 14-18 Sept. 2009, Athens Greece, DOI: [10.1109/ESSDERC.2009.5331602](https://doi.org/10.1109/ESSDERC.2009.5331602)
18. "Pixel electronics for a hybrid x/gamma-ray imager", C. T. Lambropoulos, ..., **A. Papadimitriou**,..., *SPIE International Symposium on SPIE Optics Engineering & Applications, SPIE Optics & Photonics*, 2010, San Diego CA USA, DOI: [10.1117/12.862712](https://doi.org/10.1117/12.862712)
19. "The COCAE detector: An instrument for localization — Identification of radioactive sources", C.P. Lambropoulos, ..., A. Papadimitriou, ..., *IEEE Nuclear Science Symposium & Medical Imaging Conference*, 30 Oct.-6 Nov. 2010, Knoxville TN USA, DOI: [10.1109/NSSMIC.2010.5874548](https://doi.org/10.1109/NSSMIC.2010.5874548)

Languages

Greek: native; English: Fluent (Cambridge, Proficiency – C2 level); French: Good (7-year stay in France)

Interests

Fishing, Gardening, Traveling

Personal Information

Nationality: Greek

Compulsory military service fulfilled.