

# CURRICULUM VITAE

## Alexios Voulimeneas

Nationality: Greek

Email: [alex.voulimeneas@kuleuven.be](mailto:alex.voulimeneas@kuleuven.be)

Twitter: @systemsgreek

Website: <https://alexios-voulimeneas.github.io/>

Languages: Greek (native), English (fluent), German (basic)

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## Research Interests

**Cyber Security:** software diversity, memory safety, sandboxing, compartmentalization, n-variant execution, exploits, defenses

**Operating Systems:** kernel development, networking, debugging, virtualization, application monitoring, heterogeneous computing, fault tolerance, reliability, record/replay

**Software Protection:** anti tampering, integrity checking, reverse engineering

## Education

**PhD in Computer Science** 2020

University of California, Irvine

**Advisor:** Professor Michael Franz

**Thesis Topic:** Building the Next Generation of Security Focused

NVX Systems: Overcoming Limitations of N-Variant Execution

**MSc in Computer Science** 2017

University of California, Irvine

**GPA:** 3.985/4

**Ptychio in Informatics (4-year degree)** 2012

Athens University of Economics and Business (AUEB)/Department of Informatics, Athens

**GPA:** 9.1/10 (top 0.67%)

**Advisor:** Professor George Xylomenos

**Thesis Topic:** Towards an Error Control Scheme for a Publish/Subscribe Network

## Research Experience

**Postdoctoral Scholar** 2020 – Present

KU Leuven

I work with Professor Stijn Volckaert in the imec-DistriNet research group at KU Leuven's Technology Campus in Ghent, Belgium. I conduct research, write papers and project proposals, and supervise and evaluate students.

**Graduate Research Assistant** 2015 – 2020

University of California, Irvine

I worked with Professor Michael Franz in the Secure Systems Lab at the Donald Bren School of Information and Computer Sciences. I conducted research, and I wrote papers and project proposals.

**Visiting Scholar** Fall 2019

KU Leuven

**Undergraduate and Graduate Researcher** 2011 – 2014

Mobile Multimedia Laboratory/AUEB

# Industry Experience

<b>Software Engineering Intern</b> Apple Inc.	Summer 2019
<b>Research Assistant Intern</b> Oracle Labs	Summer 2017
<b>Hellenic Army</b> (mandatory military service) Research and Informatics Directorate	11/2014 – 08/2015
<b>C and JAVA Software Engineer Intern</b> NCSR Demokritos	Summer 2012

# Publications

## Conference/Journal/Workshop Publications

**You Shall Not (by)Pass! Towards Secure, and Fast PKU-based Sandboxing.** A. Voulimeneas, J. Vinck, R. Mechelinck, and S. Volckaert. *In European Conference on Computer Systems (EuroSys 2022)*. **[42 papers accepted out of 162 submissions = 25.9%]**

**Sharing is Caring: Secure and Efficient Shared Memory Support for MVEEs.** J. Vinck, B. Abrath, B. Coppens, A. Voulimeneas, B. De Sutter, and S. Volckaert. *In European Conference on Computer Systems (EuroSys 2022)*. **[42 papers accepted out of 162 submissions = 25.9%]**

**dMVX: Secure and Efficient Multi-Variant Execution in a Distributed Setting.** A. Voulimeneas, D. Song, P. Larsen, M. Franz, and S. Volckaert. *In European Workshop on Systems Security (EuroSec 2021)*

**Distributed Heterogeneous N-Variant Execution.** A. Voulimeneas, D. Song, F. Parzefall, Y. Na, P. Larsen, M. Franz, and S. Volckaert. *In Conference on Detection of Intrusions and Malware & Vulnerability Assessment (DIMVA 2020)*. **[13 papers accepted out of 45 submissions = 28.9%]**

**Secure and Efficient Application Monitoring and Replication.** S. Volckaert, B. Coppens, A. Voulimeneas, A. Homescu, P. Larsen, B. De Sutter, and M. Franz. *In USENIX Annual Technical Conference (ATC 2016)*. **[47 papers accepted out of 266 submissions = 17.6%]**

**A Reliable Multicast Transport Protocol for Information-Centric Networks.** C. Stais, G. Xylomenos, and A. Voulimeneas. *In Journal of Network and Computer Applications (JNCA 2014)*

**Towards an Error Control Scheme for a Publish/Subscribe Network.** C. Stais, A. Voulimeneas, and G. Xylomenos. *In International Conference on Communications (ICC 2013)*

## Theses

**Building the Next Generation of Security Focused NVX Systems: Overcoming Limitations of N-Variant Execution.** A. Voulimeneas. PhD Thesis, 2020.

**Towards an Error Control Scheme for a Publish/Subscribe Network.** A. Voulimeneas. BSc Thesis, 2012.

# Funding

HONEY-MON: Cyber Deception via N-Variant Execution Co-author of a proposal at UC Irvine. With Michael Franz ( <b>sole PI</b> ), Per Larsen, Stijn Volckaert, David Gens, Adrian Dabrowski. Award Amount: +/- 1.65M \$	ONR (2021-2024)
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# Teaching Experience

## Teaching Assistant

Winter 2017

ICS 6B: Boolean Algebra and Logic  
University of California, Irvine

## Reader

Spring 2016

ICS 46: Data Structure Implementation and Analysis  
University of California, Irvine

## Lab Assistant

Summer 2010

Computational Mathematics  
Athens University of Economics and Business

# Supervision and Evaluation

## PhD Students

Karel Dhondt (since 2018, @ KU Leuven)  
Jonas Vinck (since 2019, @ KU Leuven)  
Ruben Mechelinck (since 2019, @ KU Leuven)  
Adriaan Jacobs (since 2021, @ KU Leuven)  
Alicia Andries (since 2022, @ KU Leuven)  
André Rösti (since 2022, @ UCI)

## MSc Students

André Rösti (Research Assistant since 2020, @ UCI. Graduated 2022)  
Adriaan Jacobs (Master Thesis since 2020, @ KU Leuven. Graduated 2021)  
**Thesis Topic:** Combating address-sensitive behavior in MVEEs  
Michael Poker (Master Thesis since 2021, @ TU Braunschweig. Graduated 2022)  
**Thesis Topic:** Techniques for Fast-Forwarding Execution State to Synchronize Software Instances in an MVEE

# Professional Scientific Activities

## Paper Review and Artifact Evaluation

(EuroSys) European Conference on Computer Systems, Program Committee [2023]  
(ASIACCS) ACM ASIA Conference on Computer and Communications Security, Program Committee [2023]  
(ESORICS) European Symposium on Research in Computer Security, Program Committee [2022]  
(PLDI) ACM SIGPLAN Conference on Programming Language Design and Implementation, Artifact Evaluation Committee [2022]  
(EuroSys) European Conference on Computer Systems, Artifact Evaluation Committee [2022]  
(USENIX Security) USENIX Security Symposium, Artifact Evaluation Committee [2022]  
(EuroSys) European Conference on Computer Systems, External Reviewer [2021, 2022]  
(ROOTS) Reversing and Offensive-oriented Trends Symposium, Program Committee [2020, 2021, 2022]  
(OSDI) USENIX Symposium on Operating Systems Design and Implementation, Artifact Evaluation Committee [2020]  
(S&P) IEEE Symposium on Security and Privacy, Student Program Committee [2018]

## Conferences Attended (+ = I gave a presentation)

(EuroSys) European Conference on Computer Systems [Attended in 2022+]  
(NDSS) Network and Distributed Systems Security Symposium [Attended in 2016, 2017, 2018]  
(S&P) IEEE Symposium on Security and Privacy [Attended in 2016]  
(CCS) ACM Conference on Computer and Communications Security [Attended in 2016]  
(DIMVA) Conference on Detection of Intrusions and Malware & Vulnerability Assessment [Attended in 2020+]

(EuroSec) European Workshop on Systems Security [Attended in 2020+]

### **Talks**

#### **You Shall Not (by)Pass! Practical, Secure, and Fast PKU-based Sandboxing**

Invited Talk @ Intel Labs, Online, May 2022

#### **Distributed Heterogeneous N-Variant Execution**

Invited Talk @ DRADS DistriNet Workshop, Leuven, Belgium, July 2021

#### **Redundant Execution and Lightweight Monitoring for Security and Performance**

Invited Talk @ Mobile Multimedia Laboratory (MMLab), AUEB, Athens, Greece, June 2019

#### **Industry and Graduate Studies Opportunities in Greece, Europe, and USA**

Invited Talk @ AUEB, Athens, Greece [2015, 2016, 2017, 2019, 2021]

## **Awards, Grants, and Distinctions**

EuroSys Distinguished Reviewer Artifact Award	2022
ACM CCS Student Travel Grant	2016
IEEE S&P Student Travel Grant	2016
ICS Dean's Award, University California, Irvine	2015
Scholarship for Graduate Studies, Latsis Foundation	2013
Scholarship for Graduate Studies, Foundation for Education and European Culture	2013
Valedictorian Graduate, Athens University of Economics and Business	2012