

CURRICULUM VITAE

Alexios Voulimeneas

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

Research Interest

Cyber Security: software diversity, memory safety, sandboxing, compartmentalization, multi-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

Doctor of Philosophy (PhD), Computer Science 2020

University of California, Irvine

Advisor: Prof. Michael Franz

Dissertation Title: Building the Next Generation of Security Focused NVX Systems: Overcoming Limitations of N-Variant Execution.

M.S, Computer Science 2017

University of California, Irvine

Degree in Informatics • 4-year curriculum 2012

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

Advisor: Prof. George Xylomeneos

Dissertation Title: Towards an Error Control Scheme for a Publish/Subscribe Network

Research Experience

Postdoctoral Scholar 2020 – Present

KU Leuven

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

Visitor Scholar Fall 2019

KU Leuven

Undergraduate and Graduate Researcher 2011 – 2014

Mobile Multimedia Laboratory/AUEB

Industry Experience

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|---|-------------------|
| Software Engineering Intern Apple Inc. | Summer 2019 |
| Research Assistant Intern Oracle Labs | Summer 2017 |
| Hellenic Army (mandatory military service) Research & Informatics Directorate | 11/2014 – 08/2015 |
| C & JAVA Software Engineer Intern 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

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

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

Funding

HONEY-MON: Cyber Deception via N-Variant Execution
Co-author of a proposal at UC Irvine.

ONR (2021-2024)

With Michael Franz, Per Larsen, Stijn Volckaert, David Gens, Adrian Dabrowski.
Award Amount: +/- 1M \$ (with a possible option to +/- 1.65M \$)

Teaching Experience

Teaching Assistant

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

Winter 2017

Reader

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

Spring 2016

Lab Assistant

Computational Mathematics
Athens University of Economics and Business

Summer 2010

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)

Thesis Topic: Techniques for Fast-Forwarding Execution State to Synchronize Software Instances in an MVEE

Professional Scientific Activities

Paper Review and Artifact Evaluation

(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]

(USENIX OSDI) USENIX Symposium on Operating Systems Design and Implementation, Artifact Evaluation Committee [2020]

(IEEE 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+]

Presentations

Alexios Voulimeneas. "Distributed Heterogeneous N-Variant Execution." DRADS @ KU Leuven, Leuven, Belgium, July 2021.

Alexios Voulimeneas. "Redundant execution and Lightweight Monitoring for Security and Performance." Invited talk @ Mobile Multimedia Laboratory (MMLab), AUEB, Athens, Greece, June 2019.

Alexios Voulimeneas. "Industry and Graduate Studies Opportunities in Greece, Europe, and USA." Invited talk @ AUEB, Athens, Greece [2015, 2016, 2017, 2019, 2021].

Distinctions

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| EuroSys Distinguished Reviewer Artifact Award | 2022 |
| ACM CCS student travel award | 2016 |
| IEEE S&P student travel award | 2016 |
| ICS Dean's Recruitment Inceptive • University California, Irvine | 2015 |
| Scholarship for graduate studies • Latsis Foundation | 2013 |
| Scholarship for graduate studies • Foundation for Education and European Culture | 2013 |
| Valedictorian Graduate of September 2012 • Athens University of Economics and Business | 2012 |