

CURRICULUM VITAE

Alexios Voulimeneas

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

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

Ptychio in Informatics (4-year degree) 2012

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

Advisor: Professor George Xylomenos

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

Research Experience

Assistant Professor 2023 – Present

TU Delft

Proud member of the Cybersecurity (CYS) section in Computer Science, Department of Intelligent Systems, Faculty of Electrical Engineering, Mathematics, and Computer Science.

Postdoctoral Scholar 2020 – 2023

KU Leuven

I worked 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

Industry Experience

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

Publications

Conference/Journal/Workshop Publications

The Astonishing Evolution of Probabilistic Memory Safety: From Basic Heap-Data Attack Detection towards Fully Survivable Multi-Variant Execution. A. Rösti, **A. Voulimeneas**, and M. Franz. In *IEEE Security & Privacy* 2024.

Orbital Shield: Rethinking Satellite Security in the Commercial Off-the-Shelf Era. N. Yadav, F. Vollmer, A. R. Sadeghi, G. Smaragdakis, and **A. Voulimeneas**. In *IEEE Conference on Security for Space Systems (3S)* 2024.

System Call Interposition Without Compromise. A. Jacobs, M. Gülmez, A. Andries, S. Volckaert, and **A. Voulimeneas**. In *IEEE/IFIP International Conference on Dependable Systems and Networks (DSN)* 2024).
[42 papers accepted out of 203 submissions = 20%]

A run a day won't keep the hacker away: Inference attacks on endpoint privacy zones in fitness tracking social networks. K. Dhondt, V. L. Pochat, **A. Voulimeneas**, W. Joosen, and S. Volckaert. In *BlackHat Asia* 2023

A run a day won't keep the hacker away: Inference attacks on endpoint privacy zones in fitness tracking social networks. K. Dhondt, V. L. Pochat, **A. Voulimeneas**, W. Joosen, and S. Volckaert. In *ACM Conference on Computer and Communications Security (CCS)* 2022). [218 papers accepted out of 971 submissions = 22.5%]

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 ONR (2021-2024)
Co-author of a proposal at UC Irvine.
With Michael Franz (**sole PI**), Per Larsen, Stijn Volckaert, David Gens, Adrian Dabrowski.
Award Amount: +/- 1.65M \$

Teaching Experience

Course Developer & Instructor Systems Security TU Delft	2024 – Present
Course Developer & Instructor Computer Security TU Delft	2024 – Present
Teaching Assistant ICS 6B: Boolean Algebra and 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

Current PhD Students
Jesús María Gómez Moreno (2024-Present, @ TU Delft, co-supervised with Georgios Smaragdakis and Fernando Kuipers)

Current MSc Students
Vissarion Moutafis (2024-Present, @ TU Delft, co-supervised with Georgios Smaragdakis)

Former PhD Students (During my PhD and Postdoc)

André Rösti (2022-2024, @ UCI)
Alicia Andries (2022-2023, @ KU Leuven)
Adriaan Jacobs (2021-2023, @ KU Leuven)
Ruben Mechelinck (2019-2023, @ KU Leuven)
Jonas Vinck (2019-2023, @ KU Leuven)
Karel Dhondt (2018-2023, @ KU Leuven)

Graduated MSc Students

Wouter Jehee (Master Thesis since 2023, @ TU Delft, co-supervised with Georgios Smaragdakis. Graduated 2024)

Thesis Topic: WALL-EYE: Taking a look at CubeSat security - Security analysis of CubeSats on a physical testbed

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, Proceedings Chair [2025]
(ACNS) International Conference on Applied Cryptography and Network Security, Program Committee [2025]
(S&P) IEEE Symposium on Security and Privacy, Program Committee [2025]
(ISC) Information Security Conference, Program Committee [2024]
(EuroSec) European Workshop on System Security, Program Committee [2024]
(USENIX Security) USENIX Security Symposium, Program Committee [2024, 2025]
(DIMVA) Conference on Detection of Intrusions and Malware & Vulnerability Assessment, Program Committee [2024]
(CCS) ACM Conference on Computer and Communications Security, Program Committee [2023, 2024]
(Middleware) ACM/USENIX/IFIP International Middleware Conference, Program Committee [2023, 2025]
(USENIX Security) USENIX Security Symposium, Artifact Evaluation Publication Chair [2023]
(EuroSys) European Conference on Computer Systems, Program Committee [2023]
(ASIACCS) ACM ASIA Conference on Computer and Communications Security, Program Committee [2023, 2024]
(ESORICS) European Symposium on Research in Computer Security, Program Committee [2022, 2023]
(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)

(ESORICS) European Symposium on Research in Computer Security [Attended in 2023]
(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+, 2022+]
(EuroSec) European Workshop on Systems Security [Attended in 2020+]

Talks

Building Secure and Reliable Systems – A Systems Approach

Invited Talk @ IMDEA Software Institute, Madrid, Spain, September 2024

Tales of Memory-Error Exploits and Defenses

Invited Talk @ TU Delft, Delft, Netherlands, March 2023

Tales of Memory-Error Exploits and Defenses

Invited Talk @ AUEB, Athens, Greece, December 2022

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

Invited Talk @ Telecom SudParis/IP Paris, Online, December 2022

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, 2022]

Awards, Grants, and Distinctions

CCS 2023 Top Reviewer Award	2023
ASIA CCS 2023 Best Reviewer Award	2023
Runner-up for the 2022 CNIL-Inria Award for Privacy Protection	2022
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