

Curriculum Vitae

Personal Data

Name Vladislav Mladenov
Address Bulksmühle 20, 44809 Bochum
E-Mail vladislav.mladenov@rub.de
Birthday 07. Juni 1986
Languages Bulgarian (Mother tongue)
German, English, Russian



General Research Interests

- Network Security & Privacy** Threat analysis of network protocols used in smart systems, public and private networks, and cloud services.
- Data & Software Security** Protecting sensitive data from unauthorized access, misuse, or disclosure; detecting and preventing attacks on software applications.
- Modern Identity & Access Control** Hardening and monitoring of cryptographic authentication and authorization systems with a focus on security in web applications, industry systems, and IoT.

Education and Scientific Career

- since 08.2025 **Habilitation Equivalence**, *Ruhr University Bochum*, Bochum.
Granted the right to independently supervise PhD students and teach courses.
- since 11.2024 **Research Group Leader**, *Ruhr University Bochum*, Bochum.
- Tasks: PhD supervision and projects acquisition.
- since 06.2022 **Project Coordinator of Graduate School**, *North Rhine-Westphalian Experts on Research in Digitalization (NERD II)*, Bochum.
- Tasks: Project supervision and administration; development and implementation of an educational concept for the graduate school (10 PhDs from 6 universities).
- 07.2021-12.2025 **Associated Principal Investigator**, *Cluster of Excellence CASA - Cyber Security in the Age of Large-Scale Adversaries*, Bochum.
- Tasks: Supporting PhD students, networking, projects acquisition
- since 10.2020 **Postdoc**, *Chair for Network and Data Security*, Bochum.
- Tasks: Teaching, supporting PhD students, research, projects acquisition
- 04.2020-09.2020 **Substitute Professorship**, *Cyber Physical Systems*, Konstanz.
- Tasks: Teaching, research
- 07.2017-03.2020 **Postdoc**, *Chair for Network and Data Security*, Bochum.
- Tasks: Teaching, supporting PhD students, research, projects acquisition
- 02.2012-06.2017 **Ph.D.**, *Chair for Network and Data Security*, Ruhr University Bochum.
Title: "On the Security of Single Sign-On"
Supervisor: Prof. Jörg Schwenk, Advisor: Prof. Felix Freiling
- 10.2004-01.2012 **Dipl.-Ing.**, *Chair for Network and Data Security*, Ruhr University Bochum.
Title: "Performance of Group Key Agreement Protocols in Wireless Mesh Networks"

Work Experience

Since 2017, I have supervised PhD students, with two earning *summa cum laude*. I am active in academic administration, serve on faculty committees, and contribute to top security conference programs. I also work with standardization bodies like ISO and IETF.

Since 2015, I have been an IT-Security consultant, advising leading companies on web security and authentication protocols.

PhD Supervision

- since 2024 **Sören Borgstedt**, *Topic: "Security & Privacy of PDF Documents"*.
- since 2024 **Lilian Hildebrandt**, *Topic: "Security of Long-term Preservation of Office Documents"*.
- since 2019 **Louis Jannett**, *Topic: "On the Security of Modern Single Sign-On"*, Formal supervision by Prof. Jörg Schwenk.
- 2019-2023 **Simon Rohlmann**, *Phd Thesis: "On the Security of Signatures in Digital Documents"*, Formal supervision by Prof. Jörg Schwenk, Awarded with *summa cum laude*.
- 2017-2021 **Jens Müller**, *Phd Thesis: "On Security in Digital Office"*, Formal supervision by Prof. Jörg Schwenk, Awarded with *summa cum laude*.

Community Contributions

- since 2021 **ISO and DIN working groups**, *Member*, Security advisory for the current PDF specification.
- since 2021 **PDF Association**, *Member*, Working group "Securing the PDF specification".
- since 2017 **IETF and OpenID Connect Foundation**, *Volunteer*, Security advisory for the OAuth and OpenID Connect protocols.
- 2016–2025 **Program Committee**, USENIX'24–26, RAID'24–25, USENIX'21–23 Artifacts; *Sub-Reviewer*: USENIX'19/21, WOOT'19, ACNS'16, CCS'16.

Academic Self-Administration

- since 07/2025 **Research School: Early Career Researcher Board**, *Member*, Quality assurance, application evaluation, participation in funding decisions.
- since 10/2023 **Faculty Council**, *Member*, Scientific staff group.
- 04/2025 – 09/2025 **Commission for Teaching (UKL)**, *Substitute*, The UKL improves quality, supports initiatives, addresses issues, and enhances the student experience..
- 02/2022 - 09/2025 **Quality Improvement Commission**, *Member*, Scientific staff group.
- 02/2022 – 10/2024 **Study Advisory Board**, *Member*, Scientific staff group.
- 2022 **Appeals Commission**, *Member*, Scientific staff group.

Awards

- 2024 **Excellent Teaching Award**, *Winner of the Excellent Teaching Award at the Faculty of Computer Science at Ruhr University Bochum.*
- 2022 **CSAW Best Paper Award**, *2nd place in the Applied Research Competition: "Security of the Open Document Format", Simon Rohlmann, Christian Mainka, Vladislav Mladenov, and Jörg Schwenk.*
- 2022 **5x5000 Competition: "Online or presence teaching - it fits!"**, *Winner with the project "eHacking", Vladislav Mladenov.*
- 2019 **CSAW Best Paper Award**, *Winner of the Applied Research Competition: "Security of PDF Signatures", Vladislav Mladenov.*

Funding Experience

Project Acquisition

- DFG **"Security & Privacy of PDF Documents"**, *Budget: 666.000,00€; Goal: The project aims to find a suitable solution for the automated discovery of new PDF malware and cryptographic-based attacks. In addition, privacy leaks in PDF documents before and after redaction will be evaluated, Start in November 2024, Formal Applicant: Vladislav Mladenov.*
- Ministry of NRW **"ECSE.NRW"**, *Budget: 698.493,75€; Goal: Strengthening the cyber security in inpatient health care in North Rhine-Westphalia, Task: Financial planing and description of work packages. Formal Applicant: Prof. Jörg Schwenk.*
- EU "Horizon 2020" **"FutureTrust"**, *Budget: 7.474.030,75€; Goal: Practical implementation and security evaluation of different services in the eID/eIDAS ecosystem, Task: Description of work packages. Formal Applicant: Prof. Jörg Schwenk.*
- BMWi Federal Ministry **Extension of the Project "SkIDentity"**, *Budget: 665.000,00€; Goal: Implementation of strong eID-based authentication for Cloud providers and security evaluation of the currently used authentication mechanisms, Task: Financial planing and description of work packages. Formal Applicant: Prof. Jörg Schwenk.*

Completed Research Projects

- 06/2016 – 09/2019 **EU Project "FutureTrust"**, *Goal: Practical implementation and security evaluation of different services in the eID/eIDAS ecosystem, Chair for Network and Data Security, Bochum.*
- 02/2012 – 12/2015 **Project "SkIDentity"**, *Goal: Trustworthy identities in the Cloud, Chair for Network and Data Security, Bochum.*
- 02/2012 – 04/2013 **Project "ID4Health"**, *Goal: Practical implementation and security evaluation of modern identity management systems in the health care, Chair for Network and Data Security, Bochum.*

Teaching Experience

I have been giving my own lectures, both in German and English, every semester since 2014 at different universities like Ruhr University Bochum, University of Konstanz, and University of Wuppertal. I received excellent evaluations from the students for my lectures and won the Teaching Award of the Faculty of Computer Science at Ruhr University Bochum in 2024, as well as the 5x5000 e-Learning competition in 2022.

- since WS 2018 **Lecturer: “Message Level Security”**, *Chair for Network and Data Security*, Ruhr University Bochum, Bochum.
Topics: Security of REST APIs and data formats (JSON, XML, PDF); analysis of identity management protocols (OAuth, OpenID Connect, SAML).
Tasks: Supervision of the lecture and the exercises; creation and correction of the exams.
- since WS 2025 **Lecturer: “Basic Hacking Laboratory Course”**, *Chair for Network and Data Security*, Ruhr University Bochum, Bochum.
Topics: Supervision of a laboratory course focused on hands-on hacking practices.
Tasks: Oversight of the course and development of its educational framework.
- since WS 2025 **Lecturer: “Advanced Hacking Laboratory Course”**, *Chair for Network and Data Security*, Ruhr University Bochum, Bochum.
Topics: Supervision of a laboratory course focused on advanced hacking on web technologies.
Tasks: Oversight of the course and development of its educational framework.
- since SS 2023 **Seminar: “Current Topics in the IT Security”**, *Chair for Network and Data Security*, Ruhr University Bochum, Bochum.
Topics: Improving the writing, research and presentation skills.
- since SS 2023 **Seminar: “Network Security”**, *Distance learning course “Open Competence Center for Cyber Security (OpenC³S)”*.
Topics: Improving the writing, research and presentation skills.
- SS 2022 – 2024 **Lecturer: “Foundations of Cryptography and IT-Security”**, *University of Wuppertal*, Wuppertal.
Topics: Introduction of cryptography and its essential building blocks; overview of important technologies in web; web-based attacks.
Tasks: Supervision of the lecture and the exercises; creation and correction of the exams.
- SS 2020 **Lecturer: “Web Security”**, *Cyber Physical Systems*, University of Konstanz, Konstanz.
Topics: Current security treats in web: web application security (Cross-site scripting, SQL injection, best current practices); transport security (TLS and PKI); security of the data formats JSON und XML; document-based attacks (e.g., PDF);
Tasks: Supervision of the lecture and the exercises; creation and correction of the exams.
- SS 2014 – 2017, 2019 **Lecturer: “Advanced attack techniques on the web”**, *Fachhochschule Bonn-Rhein-Sieg*, Sankt-Augustin.
Topics: Web application security; security analysis of identity management protocols like OAuth, OpenID Connect und SAML 2.0.
Tasks: Supervision of the lecture and the exercises; creation and correction of the exams.
- SS 2014 – 2016 **Assistent: “Computer networks”**, *Chair for Network and Data Security*, Ruhr University Bochum.
Topics: Introduction in basic network protocols and applications.
Tasks: Supervision of the exercises; development and supervision of the teaching module “Tool of the Week”; creation and correction of the exams.

- SS 2014, WS 2014 **Assistent: Distance learning course “Applied IT Security”, Module “Network Security”**, *Chair for Network and Data Security*, Ruhr University Bochum, Bochum.
Topics: Cryptographic mechanisms to secure transmitted data in networks. Such networks are for example Pay-TV, WLANs (WEP/WPA), VPNs, and DNS (DNSSEC).
Tasks: Supervision of the exercises; creation and correction of the exams.
- WS 2012 – 2016 **Assistent: “XML and Webservice Security”**, *Chair for Network and Data Security*, Ruhr University Bochum.
Topics: Web application security; security of the XML data format; security analysis of XML-based web services; introduction in identity management protocols.
Tasks: Supervision of the exercises; creation and correction of the exams.
- SS 2012 **Assistent: “Network and Data security”**, *Chair for Network and Data Security*, Ruhr University Bochum.
Topics: Cryptographic mechanisms to secure transmitted data in networks. Such networks are for example Pay-TV, WLANs (WEP/WPA), VPNs, and DNS (DNSSEC).
Tasks: Supervision of the exercises; creation and correction of the exams.

Invited Lectures

- since SS 2021 **“Web Security”**, *System Security*, University of Paderborn, Paderborn.
Topics: Security of REST APIs
- SS 2025 **“Hacker Praktikum”**, *Application Security*, University of Braunschweig, Braunschweig.
Topics: Security of processing dangerous data: Breaking security with PDF documents.

Research

I mainly publish on top-tier conferences (also known as A* or tier 1 conference), which accept only 10-20% of their submissions. Altogether, I am author of 15 publications that appeared on the most prestigious and extremely competitive tier-1 and tier-2 security conferences.

Top tier 1 (Rank A*) and tier 2 (Rank A) conference papers

- 2026 Jannett, L., M. Westers, A. Mayer, V. Mladenov, C. Mainka, and J. Schwenk. **“The State of Passkeys: Studying the Adoption and Security of Passkeys on the Web”**. In: *35th USENIX Security Symposium (USENIX'26)*. 2026.
- 2025 Innocenti, T., L. Jannett, C. Mainka, V. Mladenov, and E. Kirda. **““Only as Strong as the Weakest Link”: On the Security of Brokered Single Sign-On on the Web”**. In: *2025 IEEE Symposium on Security and Privacy (SP)*. Los Alamitos, CA, USA: IEEE Computer Society, May 2025, pp. 24–24.
- 2025 Rossel, J., V. Mladenov, N. Wördenweber, and J. Somorovsky. **“Security Implications of Malicious G-Codes in 3D Printing”**. In: *34th USENIX Security Symposium (USENIX'25)*. 2025.
- 2024 Westers, M., T. Wich, L. Jannett, C. Mainka, A. Mayer, and V. Mladenov. **“SSO-Monitor: Fully-Automatic Large-Scale Security and Privacy Analyses of Single Sign-On in the Wild”**. In: *2024 IEEE European Symposium on Security and Privacy (EuroS&P)*. Aug. 2024.
- 2023 Rohlmann, S., V. Mladenov, C. Mainka, D. Hirschberger, and J. Schwenk. **“Every Signature is Broken: On the Insecurity of Microsoft Office’s OOXML Signatures”**. In: *32st USENIX Security Symposium (USENIX'23)*. 2023.

- 2023 Rossel, J., V. Mladenov, and J. Somorovsky. **“Security Analysis of the 3MF Data Format”**. In: *International Symposium on Research in Attacks, Intrusions, and Defenses (RAID’ 23)*. Oct. 2023.
- 2022 Jannet, L., V. Mladenov, C. Mainka, and J. Schwenk. **“DISTINCT: Identity Theft using In-Browser Communications in Dual-Window Single Sign-On”**. In: *Proceedings of the 2022 ACM SIGSAC Conference on Computer and Communications Security (CCS)*. Nov. 2022. DOI: 10.1145/3548606.3560692.
- 2022 Rohlmann, S., C. Mainka, V. Mladenov, and J. Schwenk. **“Oops... Code Execution and Content Spoofing: The First Comprehensive Analysis of OpenDocument Signatures”**. In: *31st USENIX Security Symposium (USENIX’22)*. 2022.
- 2021 Mainka, C., V. Mladenov, and S. Rohlmann. **“Shadow Attacks: Hiding and Replacing Content in Signed PDFs”**. In: *In Proceedings of the Network and Distributed System Security Symposium (NDSS)*. 2021.
- 2021 Müller, J., D. Noss, C. Mainka, V. Mladenov, and J. Schwenk. **“Processing Dangerous Paths – On Security and Privacy of the Portable Document Form”**. In: *In Proceedings of the Network and Distributed System Security Symposium (NDSS)*. 2021.
- 2021 Rohlmann, S., V. Mladenov, C. Mainka, and J. Schwenk. **“Breaking the Specification: PDF Certification”**. In: *2021 IEEE Symposium on Security and Privacy (SP)*. 2021.
- 2019 Mladenov, V., C. Mainka, K. Meyer zu Selhausen, M. Grothe, and J. Schwenk. **“1 Trillion Dollar Refund: How To Spoof PDF Signatures”**. In: *Proceedings of the 2019 ACM SIGSAC Conference on Computer and Communications Security*. 2019.
- 2019 Müller, J., F. Ising, V. Mladenov, C. Mainka, S. Schinzel, and J. Schwenk. **“Practical Decryption Exfiltration: Breaking PDF Encryption”**. In: *Proceedings of the 2019 ACM SIGSAC Conference on Computer and Communications Security. CCS ’19*. 2019.
- 2017 Felsch, D., C. Mainka, V. Mladenov, and J. Schwenk. **“SECRET: On the Feasibility of a Secure, Efficient, and Collaborative Real-Time Web Editor”**. In: *ACM Asia Conference on Computer and Communications Security (ASIACCS)*. 2017.
- 2017 Mladenov, V., C. Mainka, T. Wich, and J. Schwenk. **“SoK: Single Sign-On Security – An Evaluation of OpenID Connect”**. In: *2017 IEEE European Symposium on Security and Privacy (EuroS&P)*. 2017.
- 2017 Müller, J., V. Mladenov, J. Somorovsky, and J. Schwenk. **“Sok: Exploiting network printers”**. In: *2017 IEEE Symposium on Security and Privacy (SP)*. IEEE. 2017, pp. 213–230.

Selected Talks

- 2022 **Keynote**, *Workshop on secure cryptographic implementation (SCI)*, “Hey...it’s a PDF. What can go wrong?”.
- 2019 **Presentation**, *36th Chaos Computer Congress*, “How to Break PDFs”.
https://media.ccc.de/v/36c3-10832-how_to_break_pdfs
- 2016 **Presentation**, *AppSecEU*, ‘Systematically Breaking and Fixing OpenID Connect’.
https://www.youtube.com/watch?v=9ZqPOQUW_1M