Sven Bugiel

Curriculum Vitae (Online Version)

Personal Data

web   `www.svenbugiel.de`

Education

10/2010 – 12/2015   **Dr.-Ing. (Ph.D. in Security in Information Technology) with distinction**, *Department of Computer Science, Faculty of Natural Sciences and Technology I, Saarland University*

Thesis: *Establishing Mandatory Access Control on Android OS.*
Advisor: Prof. Dr.-Ing. Michael Backes (Saarland University)
Reviewers: Prof. Patrick McDaniel (PennState University), Prof. Dr. Christian Rossow (Saarland University)

08/2008 – 06/2010   **M.Sc. in Security and Mobile Computing (with distinction)**, *Technical University of Denmark, Copenhagen, Denmark and Royal Institute of Technology, Stockholm, Sweden*, Student in the NordSecMob Erasmus Mundus Master's Programme in Security and Mobile Computing

Focus on Theoretical Computer Science, Applied Cryptography, High-Performance Computing, Functional Programming, Advanced Internetworking, Interdomain Routing, Internet Security.

Master thesis: *Using TCG/DRTM for application-specific credential storage and usage* (in cooperation with Nokia Research Center, Helsinki, Finland).
Supervisors: Prof. Christian Damsgaard Jensen (Technical University of Denmark), Prof. Peter Sjödin (The Royal Institute of Technology)
Instructor: Jan-Erik Ekberg (Nokia Research Center)

09/2007 – 05/2008   **European Erasmus student exchange programme**, *Helsinki University of Technology, Finland (now Aalto University, Helsinki, Finland)*

Focus on Design and Analysis of Algorithms, Operating Systems Design, Practical Security of Information Systems, Malware Analysis and Antivirus Technologies, Distributed Systems.

10/2004 – 08/2008   **Vordiplom (Pre-Diploma) in Security in Information Science**, *Horst Görtz Institute for IT Security, Ruhr-University Bochum, Germany*

Focus on Mathematics, Theoretical and Practical Cryptography, Network and System Security, Information Sciences, Electrical Engineering.

1994–2003   **Abitur (German high-school diploma)**, *Gymnasium Sonthofen, Germany*, Leistungskurse (Advanced Classes): Mathematics and Physics

Research Experience

Since 01/2022	**Tenured Faculty**, *Head of Trusted Systems Group*, CISPA Helmholtz Center for Information Security, Germany Research focus on (mobile) operating system security, trusted computing, and usability.
07/2018 – 12/2021	**Tenure Track Faculty**, *Head of Trusted Systems Group*, CISPA Helmholtz Center for Information Security, Germany Research focus on (mobile) operating system security, trusted computing, and usability.
05/2016 – 06/2018	**Research Group Leader**, *Trusted Systems Group, Center for IT-Security, Privacy, and Accountability (CISPA)*, Saarland University, Germany Research focus on (mobile) operating system security and trusted computing.
04/2013 – 04/2016	**Research Assistant**, *Information Security and Cryptography Group, Center for IT-Security, Privacy, and Accountability (CISPA)*, Saarland University, Germany Work in the area of mobile security.
10/2010 – 03/2013	**Research Assistant**, *System Security Lab, Center for Advanced Security Research Darmstadt (CASED)*, Technische Universität Darmstadt, Germany Work in EU research project TClouds (see Projects below) and the area of mobile security.
01/2010 – 06/2010	**Research Intern**, *Nokia Research Center, Helsinki, Trustworthy Mobile Platforms Group*, Helsinki, Finland Master thesis and publication "Implementing an Application-Specific Credential Platform Using Late-Launched Mobile Trusted Module" advised by Jan-Erik Ekberg and N. Asokan
06/2009 – 08/2009	**Research Intern**, *Nokia Research Center, Helsinki, Trustworthy Mobile Platforms Group*, Helsinki, Finland Binding execution of secure execution environments to user-space programs; advised by Jan-Erik Ekberg and N. Asokan
06/2008 – 08/2008	**Research Intern**, *Nokia Research Center, Helsinki, Trustworthy Mobile Platforms Group*, Helsinki, Finland Topic "Implementation of software-based Mobile Trusted Module for mobile secure execution environments" advised by Jan-Erik Ekberg and N. Asokan

Scientific Service

Program (Co-)Chair

Who Are You?! Adventures in Authentication Workshop 2021 (WAY'21)

Program Committee Member

USENIX Security SEC'23 (32nd USENIX Security Symposium)

IEEE S&P'22 (43rd IEEE Symposium on Security and Privacy)

USENIX Security SEC'21 (30th USENIX Security Symposium)

USENIX Security SEC'20 (29th USENIX Security Symposium)

ACM CCS'19 (26th ACM Conference on Computer and Communications Security)

Privacy by Design in Practice track at ACM SIGAPP SAC'19 (34th ACM/SIGAPP Symposium On Applied Computing)

USENIX Security SEC'19 (28th USENIX Security Symposium)

ACM CCS'18 (25th ACM Conference on Computer and Communications Security)

IEEE EuroS&P '16 (1st IEEE European Symposium on Security and Privacy)

Program Committee Member (Workshops)

FoPI '21 (Future of PI: Challenges and Perspectives of Personal Identification)

WAY '20 (Who Are You?! Adventures in Authentication Workshop)

SysTEX '16 (Workshop on System Software for Trusted Execution)

Poster Program Committee Member

ACM CCS '16 (ACM Conference on Computer and Communications Security)

Journal Reviewer

IEEE TDSC '21 (IEEE Transactions on Dependable and Secure Computing)

IEEE TIFS '17 (IEEE Transactions on Information Forensics and Security)

IEEE TDSC '16 (IEEE Transactions on Dependable and Secure Computing)

IEEE TDSCSI '14 (IEEE Transactions on Dependable and Secure Computing Special Issue on Security and Privacy in Mobile Platforms)

IEEE TDSC '14 (IEEE Transactions on Dependable and Secure Computing)

SPE '13 (Software: Practice and Experience)

External Reviewer

ACM ASIACCS '11 (Information, Computer and Communications Security)

ACM ASIACCS '13 (Information, Computer and Communications Security)

ACM CCS '12 (ACM Conference on Computer and Communications Security)

ACM CCS '14 (ACM Conference on Computer and Communications Security)

ACM CCSW '12 (ACM Cloud Computing Security Workshop)

ACM CODASPY '13 (ACM Conference on Data and Application Security and Privacy)

ACM IHI '12 (ACM SIGHIT International Health Informatics Symposium)

ACM STC '11 (ACM Scalable Trusted Computing)

ESORICS '11 (European Symposium on Research in Computer Security)

ESORICS '12 (European Symposium on Research in Computer Security)

ESORICS '15 (European Symposium on Research in Computer Security)

ESORICS '16 (European Symposium on Research in Computer Security)

IEEE S&P'13 (IEEE Symposium on Security and Privacy)

IEEE TrustCom '11

NDSS '12 (Network & Distributed System Security Symposium)

NDSS '13 (Network & Distributed System Security Symposium)

NSS '11 (Network and System Security)

SEC '11 (USENIX Security)

SEC '16 (USENIX Security)

SEC '17 (USENIX Security)

WISSEC '12 (Workshop on Information and System Security)

Teaching Experience

Winter term 21/22	**Advanced Lecture**, *Mobile Security*, Saarland University, Germany
	Ring Lecture, *Perspectives of Entrepreneurial Cybersecurity*, Jointly with Giancarlo Pellegrino, Saarland University, Germany
Summer term 21	**Seminar**, *Selected Topics in Mobile Security*, Saarland University, Germany
	Seminar, *Trusted and Secure Computing*, Jointly with Michael Schwarz, Saarland University, Germany
Winter term 20/21	**Advanced Lecture**, *Mobile Security*, Saarland University, Germany
	Ring Lecture, *Perspectives of Cybersecurity*, Jointly with Giancarlo Pellegrino, Saarland University, Germany
Summer term 19	**Proseminar**, *Hacking*, Co-supervised with Prof. Dr. Christoph Sorge, Dr. Ben Stock, Dr. Stefan Nürnberger, and Dr. Nils Ole Tippenhauer, Saarland University, Germany
	Seminar, *Selected Topics in Mobile Security*, Saarland University, Germany
Winter term 18/19	**Advanced Lecture**, *Mobile Security*, Saarland University, Germany
Summer term 18	**Proseminar**, *Hacking*, Co-supervised with Prof. Dr. Christoph Sorge, Dr. Ben Stock, and Dr. Stefan Nürnberger, Saarland University, Germany
	Proseminar, *Trusted and Secure Computing*, Saarland University, Germany
Winter term 17/18	**Advanced Lecture**, *Mobile Security*, Center for IT-Security, Privacy, and Accountability (CISPA), Saarland University, Germany
Summer term 17	**Advanced Lecture**, *Trusted and Secure Computing*, Center for IT-Security, Privacy, and Accountability (CISPA), Saarland University, Germany
	Proseminar, *Hacking*, Co-supervised with Prof. Dr. Michael Backes and Prof. Dr. Christoph Sorge, Center for IT-Security, Privacy, and Accountability (CISPA), Saarland University, Germany
Winter term 16/17	**Advanced Lecture**, *Mobile Security*, Center for IT-Security, Privacy, and Accountability (CISPA), Saarland University, Germany
	Proseminar, *Practical Aspects of Cybersecurity*, Center for IT-Security, Privacy, and Accountability (CISPA), Saarland University, Germany
Summer term 16	**Advanced Lecture**, *Android Security*, Center for IT-Security, Privacy, and Accountability (CISPA), Saarland University, Germany
04/2013 – 04/2016	**Teaching Assistant**, *Information Security & Cryptography Group, Center for IT-Security, Privacy, and Accountability (CISPA)*, Saarland University, Germany Preparation and supervision of a practical course on Android security in Summer Term 2013, Winter Term 2013/2014, and Winter Term 2014/2015. Co-organized a Proseminar Hacking in Summer Term 2014, Summer Term 2015, and Summer Term 2016. Teaching assistant for Foundations of Cybersecurity in Winter Term 2014/2015 and Winter Term 2015/2016.
10/2010 – 03/2013	**Teaching Assistant**, *System Security Lab, Center for Advanced Security Research Darmstadt (CASED)*, Technische Universität Darmstadt, Germany Exercises and lab sessions on (Mobile) Trusted Computing and Smartphone Security. Preparation and supervision of two Android security labs and one Cloud security lab session. Supervision of several students for a mobile security seminar.

Awards

2019, Oct 14   **Best teaching award for Selected Topics in Mobile Security (Summer Term 2019) at Computer Science Department of Saarland University**, Saarbrücken, Germany

2015, Apr 20   **Best teaching award for Foundations of Cybersecurity (Winter Term 2014/2015) at Computer Science Department of Saarland University**, *Received together with Prof. Michael Backes, Malte Skoruppa, Erik Derr, Milivoj Simeonovski, Stefan Nürnberger, and Praveen Manoharan*, Saarbrücken, Germany

2015, Mar 25   **Saarland award for outstanding university education 2014 ("Landespreis Hochschullehre 2014") for Proseminar Hacking (Summer Term 2014)**, *Endowed with 25,000 euros. Received together with Prof. Michael Backes, Prof. Christoph Sorge, Stefan Nürnberger, Frederik Möllers, Philip von Styp-Rekowsky*, Saarbrücken, Germany

2014, Oct 20   **Best teaching award for Proseminar Hacking (Summer Term 2014) at Computer Science Department of Saarland University**, *Received together with Prof. Michael Backes, Prof. Christoph Sorge, Stefan Nürnberger, Frederik Möllers, Philip von Styp-Rekowsky*, Saarbrücken, Germany

2012, Nov 29   **4th German IT Security Award**, *Finalist with the project CloudMiner: Automatic Tool for Security and Privacy Analysis of Cloud Infrastructures*, Darmstadt, Germany

2012, Nov 29   **4th German IT Security Award**, *Finalist with the BizzTrust solution*, Darmstadt, Germany

2012, Oct 23   **TeleTrusT Innovation Award 2012**, *Awarded for the development of the BizzTrust solution, in cooperation with Stephan Heuser and Ahmad-Reza Sadeghi of the Cyberphysical and Mobile Systems Security group at the Fraunhofer Institute for Secure Information Technology, Darmstadt, Germany*, Brussels, Belgium

2011,Oct 19–21   **Best Paper at CMS'11**, *Awarded for Twin Clouds: Secure Cloud Computing with Low Latency. Sven Bugiel, Ahmad-Reza Sadeghi, Thomas Schneider, Stefan Nürnberger*, Ghent, Belgium

List of Publications

(List also available at `http://scholar.google.de/citations?user=sPrlusAAAAAJ`)

Books and Book Chapters

A. Bessani, I. M. Abbadi, S. Bugiel, E. Cesena, M. Deng, M. Gröne, N. Marnau, S. Nürnberger, M. Pasin, and N. Schirmer, *European Research Activities in Cloud Computing*, ch. TClouds: Privacy and Resilience for Internet-scale Critical Infrastructures, pp. 151 – 177. Cambridge Scholars Publishing, 2011.

Conferences and Workshops with Proceedings

J. Huang, M. Backes, and S. Bugiel, "A11y and privacy don't have to be mutually exclusive: Constraining accessibility service misuse on android," in *30th USENIX Security Symposium (USENIX Security '21)*, USENIX, 2021.

A. Dawoud and S. Bugiel, "Bringing balance to the force: Dynamic analysis of the android application framework," in *28th Annual Network & Distributed System Security Symposium (NDSS'21)*, ISOC, 2021.

D. C. Nguyen, E. Derr, M. Backes, and S. Bugiel, "Fixdep: Android tool support to fix insecure code dependencies," in *36th Annual Computer Security Applications Conference (ACSAC'20)*, ACM, 2020.

S. Ghorbani Lyastani, M. Schilling, M. Neumayr, M. Backes, and S. Bugiel, "Is FIDO2 the kingslayer of user authentication? A comparative usability study of FIDO2 passwordless authentication," in *41st IEEE Symposium on Security and Privacy (SP '20)*, IEEE, 2020.

D. Chakraborty, L. Hanzlik, and S. Bugiel, "simTPM: User-centric tpm for mobile devices," in *29th USENIX Security Symposium (USENIX Security '19)*, USENIX, 2019.

D. Chakraborty, C. Hammer, and S. Bugiel, "Secure multi-execution in android," in *34th ACM/SIGAPP Symposium on Applied Computing (SAC '19)*, ACM, 2019.

J. Huang, N. Borges, S. Bugiel, and M. Backes, "Up-to-crash: Evaluating third-party library updatability on android," in *4th IEEE European Symposium on Security and Privacy (EuroS&P'19)*, IEEE, 2019.

D. C. Nguyen, E. Derr, M. Backes, and S. Bugiel, "Short text, large effect: Measuring the impact of user reviews on android app security & privacy," in *40th IEEE Symposium on Security and Privacy (SP '19)*, IEEE, 2019.

A. Dawoud and S. Bugiel, "Droidcap: Os support for capability-based permissions in android," in *26th Annual Network & Distributed System Security Symposium (NDSS'19)*, ISOC, 2019.

S. G. Lyastani, M. Schilling, S. Fahl, M. Backes, and S. Bugiel, "Better managed than memorized? studying the impact of managers on password strength and reuse," in *28th USENIX Security Symposium (USENIX Security '18)*, USENIX, 2018.

M. Oltrogge, E. Derr, C. Stransky, Y. Acar, S. Fahl, C. Rossow, G. Pellegrino, S. Bugiel, and M. Backes, "The Rise of the Citizen Developer: Assessing the

Security Impact of Online App Generators," in *39th IEEE Symposium on Security and Privacy (S&P'18)*, IEEE, 2018.

E. Derr, S. Bugiel, S. Fahl, Y. Acar, and M. Backes, "Keep me Updated: An Empirical Study of Third-Party Library Updatability on Android," in *24th ACM Conference on Computer and Communication Security (CCS'17)*, ACM, 2017.

J. Huang, O. Schranz, S. Bugiel, and M. Backes, "The ART of App Compartmentalization: Compiler-based Library Privilege Separation on Stock Android," in *24th ACM Conference on Computer and Communication Security (CCS'17)*, ACM, 2017.

M. Backes, S. Bugiel, P. von Styp-Rekowsky, and M. Wißfeld, "Seamless in-app ad blocking on stock android," in *Mobile Security Technologies (MOST) 2017 Workshop*, IEEE, 2017.

M. Backes, S. Bugiel, O. Schranz, P. von Styp-Rekowsky, and S. Weisgerber, "ARTist: The android runtime instrumentation and security toolkit," in *2nd IEEE European Symposium on Security and Privacy (EuroS&P'17)*, IEEE, 2017.

M. Backes, S. Bugiel, and E. Derr, "Reliable Third-Party Library Detection in Android and its Security Applications," in *23rd ACM Conference on Computer and Communications Security (CCS'16)*, ACM, 2016.

M. Backes, S. Bugiel, E. Derr, P. McDaniel, D. Octeau, and S. Weisgerber, "On Demystifying the Android Application Framework: Re-Visiting Android Permission Specification Analysis," in *26th USENIX Security Symposium (USENIX Sec'16)*, USENIX Association, 2016.

M. Backes, S. Bugiel, E. Derr, S. Gerling, and C. Hammer, "R-Droid: Leveraging Android App Analysis with Static Slice Optimization," in *11th ACM Asia Conference on Computer and Communications Security (ASIACCS '16)*, ACM, 2016. Invited paper.

Y. Acar, M. Backes, S. Bugiel, S. Fahl, P. McDaniel, and M. Smith, "SoK: Lessons Learned From Android Security Research For Appified Software Platforms," in *37th IEEE Symposium on Security and Privacy (S&P'16)*, IEEE, 2016.

M. Backes, S. Bugiel, C. Hammer, O. Schranz, and P. von Styp-Rekowsky, "Boxify: Full-fledged app sandboxing for stock android," in *24th USENIX Security Symposium (USENIX Sec'15)*, USENIX Association, 2015.

M. Backes, S. Bugiel, and S. Gerling, "Scippa: System-centric IPC provenance on Android," in *30th Annual Computer Security Applications Conference (ACSAC'14)*, ACM, 2014.

M. Backes, S. Bugiel, S. Gerling, and P. von Styp-Rekowsky, "Android Security Framework: Extensible multi-layered access control on Android," in *30th Annual Computer Security Applications Conference (ACSAC'14)*, ACM, 2014.

S. Bugiel, S. Heuser, and A.-R. Sadeghi, "Flexible and fine-grained mandatory access control on Android for diverse security and privacy policies," in *22nd USENIX Security Symposium (USENIX Sec'13)*, USENIX Association, 2013.

S. Bleikertz, S. Bugiel, H. Ideler, S. Nürnberger, and A.-R. Sadeghi, "Client-controlled Cryptography-as-a-Service in the Cloud," in *11th International Conference on Applied Cryptography and Network Security (ACNS'13)*, Springer, 2013.

S. Bugiel, L. Davi, A. Dmitrienko, T. Fischer, A.-R. Sadeghi, and B. Shastry, "Towards taming privilege-escalation attacks on Android," in *19th Annual Network & Distributed System Security Symposium (NDSS'12)*, The Internet Society, 2012.

F. F. Brasser, S. Bugiel, A. Filyanov, A.-R. Sadeghi, and S. Schulz, "Softer smartcards: Usable cryptographic tokens with secure execution," in *Financial Cryptography and Data Security (FC'12)*, LNCS, Springer, 2012.

S. Bugiel, T. Pöppelmann, S. Nürnberger, A.-R. Sadeghi, and T. Schneider, "AmazonIA: When elasticity snaps back," in *18th ACM Conference on Computer and Communications Security (CCS'11)*, ACM, 2011.

S. Bugiel, L. Davi, and S. Schulz, "Scalable trust establishment with software reputation," in *6th Annual Workshop on Scalable Trusted Computing (STC'11)*, ACM, 2011.

S. Bugiel, L. Davi, A. Dmitrienko, S. Heuser, A.-R. Sadeghi, and B. Shastry, "Practical and lightweight domain isolation on Android," in *1st ACM CCS Workshop on Security and Privacy in Mobile Devices (SPSM'11)*, ACM, 2011.

S. Bugiel, S. Nürnberger, A.-R. Sadeghi, and T. Schneider, "Twin clouds: Secure cloud computing with low latency," in *Communications and Multimedia Security Conference (CMS'11)*, Springer, 2011. (Best Paper Award).

S. Bugiel, A. Dmitrienko, K. Kostiainen, A.-R. Sadeghi, and M. Winandy, "TruWalletM: Secure web authentication on mobile platforms," in *2nd Conference on Trusted Systems (INTRUST'10)*, 2010.

S. Bugiel and J.-E. Ekberg, "Implementing an application-specific credential platform using late-launched mobile trusted module," in *5th Annual Workshop on Scalable Trusted Computing (STC'10)*, ACM, 2010.

J.-E. Ekberg and S. Bugiel, "Trust in a small package: Minimized MRTM software implementation for mobile secure environments," in *4th Annual Workshop on Scalable Trusted Computing (STC'09)*, ACM, 2009.

Workshops without Proceedings

S. Bugiel, E. Derr, S. Gerling, and C. Hammer, "Advances in Mobile Security," in *8th Future Security 2013. Security Research Conference*, Fraunhofer Verlag, 2013.

S. Bugiel, A.-R. Sadeghi, T. Schneider, and S. Nürnberger, "Twin clouds: An architecture for secure cloud computing (extended abstract)," in *Workshop on Cryptography and Security in Clouds (CSC'11)*, 2011.

Journal Articles (non peer-reviewed)

S. Nürnberger and S. Bugiel, "Autonome systeme," *Datenschutz und Datensicherheit – DuD*, vol. 40, no. 8, pp. 503–506, 2016.

M. Backes, S. Bugiel, O. Schranz, and P. von Styp-Rekowsky, "Boxify: Bringing full-fledged app sandboxing to stock android," *USENIX ;login:*, vol. 41, pp. 16–21, June 2016.