

# Martina Lindorfer

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## EDUCATION

**Doctor of Technical Sciences (Dr. techn.)** July 2011 – November 2015  
Vienna University of Technology, Austria  
Graduated with honors of the Austrian president (Promotio Sub Auspiciis Praesidentis)  
Major: Malware Analysis and Mobile Security  
Thesis: *Malware Through the Looking Glass: Malware Analysis in an Evolving Threat Landscape*  
Advisor: Priv.-Doz. Dipl.-Ing. Mag.rer.soc.oec. Dr. techn. Edgar Weippl

**Master of Science (Dipl.-Ing.)** October 2006 – May 2011  
Vienna University of Technology, Austria  
Major: Software Engineering & Internet Computing  
Thesis: *Detecting Environment-Sensitive Malware*  
Advisor: Priv.-Doz. Dipl.-Ing. Dr. techn. Engin Kirda

**Bachelor of Science (BSc)** October 2003 – July 2006  
University of Applied Sciences Hagenberg, Austria  
Major: Computer and Media Security  
Theses: *Aggregate Signatures – Algorithms and Applications*  
*Integration of Elliptic Curves in the Cryptographic Base Infrastructure of the Utimaco Safeware AG*  
Advisor: FH-Prof. Dr. Juergen Fuss

## RESEARCH EXPERIENCE

**Postdoctoral Researcher** since April 2016  
*Computer Security Group, University of California, Santa Barbara, USA*

**Research Scientist** January 2013 – December 2015  
*SBA Research, Vienna, Austria*

**Visiting Researcher** October 2014 – March 2015  
*Systems Security Lab, Northeastern University, Boston, USA*

- Data leak detection in mobile app traffic (ReCon)
- Analysis of iOS8 security features

**Research Assistant** July 2011 – September 2014  
*Secure Systems Lab, Vienna University of Technology, Vienna, Austria*

- Dynamic malware analysis and detection of Android malware (Andrubis)

**Research Intern** November 2013  
*Foundation for Research and Technology – Hellas (FORTH-ICS), Heraklion, Greece*

- Discovery and detection of malicious Android apps in alternative markets (AndRadar)

**Research Intern** January – May 2013  
*Fukuda Laboratory, National Institute of Informatics (NII), Tokyo, Japan*

- Botnet traffic detection in backbone networks based on NetFlow data

**Research Intern** September – November 2009  
*Multimedia Security Lab, Korea University, Seoul, South Korea*

- Development of a Windows executable packer with encryption and compression

## Research Engineer & Project Controller

July 2006 – December 2008

*Underground\_8 Secure Computing GmbH, Linz, Austria*

- Design and development of a transparent threat management appliance, which filters mail and web traffic for spam and malware

## Teaching Assistant

March – June 2008

*Distributed Systems Technologies, Vienna University of Technology, Vienna, Austria*

## Software Engineer (Professional Practical Training)

March – June 2006

*Utimaco Safeware AG, Linz, Austria*

- Integration of elliptic curve signature and encryption algorithms in the cryptographic base infrastructure of a hard disk encryption suite

## PUBLICATIONS

### Conferences

*Panoptispy: Characterizing Audio and Video Exfiltration from Android Applications*

Elleen Pan, Jingjing Ren, [Martina Lindorfer](#), Christo Wilson, David Choffnes  
Privacy Enhancing Technologies Symposium (PETS), June 2018 (conditionally accepted)

*GuardION: Practical Mitigation of DMA-based Rowhammer Attacks on ARM*

Victor van der Veen, [Martina Lindorfer](#), Yanick Fratantonio, Harikrishnan Padmanabha Pillai, Giovanni Vigna, Christopher Kruegel, Herbert Bos, Kaveh Razavi  
Conference on Detection of Intrusions and Malware & Vulnerability Assessment (DIMVA), June 2018 (to appear)

*Bug Fixes, Improvements, ... and Privacy Leaks – A Longitudinal Study of PII Leaks in Android Apps*

Jingjing Ren, [Martina Lindorfer](#), Daniel Dubois, Ashwin Rao, David Choffnes, Narseo Vallina-Rodriguez  
Network and Distributed System Security Symposium (NDSS), February 2018

*Obfuscation-Resilient Privacy Leak Detection for Mobile Apps Through Differential Analysis*

Andrea Continella, Yanick Fratantonio, [Martina Lindorfer](#), Alessandro Puccetti, Ali Zand, Christopher Kruegel, Giovanni Vigna  
Network and Distributed System Security Symposium (NDSS), February 2017

*Drammer: Deterministic Rowhammer Attacks on Mobile Platforms*

Victor van der Veen, Yanick Fratantonio, [Martina Lindorfer](#), Daniel Gruss, Clémentine Maurice, Giovanni Vigna, Herbert Bos, Kaveh Razavi, Cristiano Giuffrida  
ACM Conference on Computer and Communications Security (CCS), October 2016

*ReCon: Revealing and Controlling PII Leaks in Mobile Network Traffic*

Jingjing Ren, Ashwin Rao, [Martina Lindorfer](#), Arnaud Legout, David Choffnes  
International Conference on Mobile Systems, Applications and Services (MobiSys), June 2016

*CuriousDroid: Automated User Interface Interaction for Android Application Analysis Sandboxes*

Patrick Carter, Collin Mulliner, [Martina Lindorfer](#), William Robertson, Engin Kirda  
International Conference on Financial Cryptography and Data Security (FC), February 2016

*Marvin: Efficient and Comprehensive Mobile App Classification Through Static and Dynamic Analysis*

[Martina Lindorfer](#), Matthias Neugschwandtner, Christian Platzer  
Annual International Computers, Software & Applications Conference (COMPSAC), July 2015

*AndRadar: Fast Discovery of Android Applications in Alternative Markets*

[Martina Lindorfer](#), Stamatis Volanis, Alessandro Sisto, Matthias Neugschwandtner, Elias Athanasopoulos, Federico Maggi, Christian Platzer, Stefano Zanero, Sotiris Ioannidis  
Conference on Detection of Intrusions and Malware & Vulnerability Assessment (DIMVA), July 2014

*Take a Bite – Finding the Worm in the Apple*

[Martina Lindorfer](#), Bernhard Miller, Matthias Neugschwandtner, Christian Platzer  
International Conference on Information, Communications and Signal Processing (ICICS), December 2013

*Lines of Malicious Code: Insights Into the Malicious Software Industry*

Martina Lindorfer, Alessandro Di Federico, Federico Maggi, Paolo Milani Comparetti, Stefano Zanero  
Annual Computer Security Applications Conference (ACSAC), December 2012

*Detecting Environment-Sensitive Malware*

Martina Lindorfer, Clemens Kolbitsch, Paolo Milani Comparetti  
International Symposium on Recent Advances in Intrusion Detection (RAID), September 2011

**Workshops**

*Andrubis – 1,000,000 Apps Later: A View on Current Android Malware Behaviors*

Martina Lindorfer, Matthias Neugschwandtner, Lukas Weichselbaum, Yanick Fratantonio,  
Victor van der Veen, Christian Platzer  
International Workshop on Building Analysis Datasets and Gathering Experience Returns for Security (BADGERS),  
September 2014

*Skin Sheriff: A Machine Learning Solution for Detecting Explicit Images*

Christian Platzer, Martin Stuetz, Martina Lindorfer,  
International Workshop on Security and Forensics in Communication Systems (SFCS), June 2014

*Enter Sandbox: Android Sandbox Comparison*

Sebastian Neuner, Victor van der Veen, Martina Lindorfer, Markus Huber, Georg Merzdovnik,  
Martin Mulazzani, Edgar Weippl  
IEEE Mobile Security Technologies Workshop (MoST), May 2014

*A View to a Kill: WebView Exploitation*

Matthias Neugschwandtner, Martina Lindorfer, Christian Platzer  
USENIX Workshop on Large-Scale Exploits and Emergent Threats (LEET), August 2013

**Miscellaneous**

*Andrubis: Android Malware Under the Magnifying Glass*

Lukas Weichselbaum, Matthias Neugschwandtner, Martina Lindorfer, Yanick Fratantonio,  
Victor van der Veen, Christian Platzer  
Technical Report, Vienna University of Technology, July 2014

*POSTER: Cross-Platform Malware: Write Once, Infect Everywhere*

Martina Lindorfer, Matthias Neumayr, Juan Caballero, Christian Platzer  
ACM Conference on Computer and Communications Security (CCS), November 2013

*The Red Book: A Roadmap for Systems Security Research*

The SysSec Consortium, Evangelos Markatos and Davide Balzarotti (editors), August 2013

**HONORS & AWARDS**

- Scholarship of Excellence from the Austrian Federal Ministry of Science, Research and Economy December 2017
- Best Paper Award at the CSAW Applied Research Competition for Drammer November 2017
- Pwnie award for Best Privilege Escalation Bug for Drammer July 2017
- Pwnie nomination for Most Innovative Research for Drammer July 2017
- Promotio Sub Auspiciis Praesidentis (graduation with highest honors in Austria) May 2017
- Best Dutch Cyber Security Research Paper (DCSRP) award for Drammer March 2017
- Bug bounty from the Android Security Rewards Program for Drammer November 2016  
(CVE-2016-6728, marked as critical)
- Marshall Plan scholarship for a research exchange with Northeastern University May 2014
- Research fellowship from Clear Sky Ventures for excellence in innovation January 2014
- SysSec scholarship for a research exchange with FORTH-ICS October 2013
- Google EMEA Anita Borg Memorial Scholarship (now Women Techmakers Scholarship) June 2012

- Finalist for the Google Europe Anita Borg Memorial Scholarship June 2008
- Finalist for the CAST IT security sponsorship award for outstanding bachelor theses November 2007

## ACADEMIC SERVICE

### Community Service

- Reviewer for the Anita Borg Systems Pass It On Awards for “women in computing or projects that inspire and support girls and women to enter computing” February 2018
- Organization of the lightning talk sessions at the Workshop for Women in Cyber Security (CyberW, co-located with ACM CCS) October 2017
- Recruitment committee member for the position of full tenured professor of security at Vienna University of Technology April 2014

### Program Committee Member

- USENIX Workshop on Offensive Technologies (WOOT) 2015, 2018
- International Symposium on Engineering Secure Software and Systems (ESSoS) 2018
- European Workshop on Systems Security (EuroSec) 2018
- Conference on Detection of Intrusions and Malware & Vulnerability Assessment (DIMVA) 2016, 2017, 2018
- International Workshop on Innovations in Mobile Privacy and Security (IMPS) 2017, 2018
- Workshop on Formal Methods for Security Engineering (ForSE) 2017, 2018
- International Workshop on Emerging Cyberthreats and Countermeasures (ECTCM) 2013, 2014, 2015

### External Reviewer

- Privacy Enhancing Technologies Symposium (PETS) 2017, 2018
- International Conference on emerging Networking EXperiments and Technologies (CoNEXT) 2016

### Journal Reviewer

- ACM Transactions on Privacy and Security
- Computers & Security
- EURASIP Journal on Information Security
- IEEE Transactions on Computers
- IEEE Transactions on Dependable and Secure Computing
- IEEE Transactions on Information Forensics and Security
- International Journal of Information Security
- Journal of Computer Virology and Hacking Techniques
- Theoretical Computer Science

## OTHER ACTIVITIES

- Mentor for Learn IT Girl, a program that helps women around the globe to learn new programming languages since October 2017
- Lead development and maintenance of Andrubis, a large-scale public dynamic analysis sandbox for Android applications June 2012 – April 2016
- Conception of a one-day workshop on mobile malware analysis techniques August 2015
- Conception of a four-day workshop on dynamic malware analysis techniques, analysis evasion and countermeasures August 2014
- Conception of a techNIKE workshop teaching Internet security topics and security and privacy awareness in online social networks to girls aged 10–14 June 2014
- Member of the We\_own\_You Capture The Flag team
  - Participation in the 2012 DEF CON Capture The Flag
  - 1st place in the 2011 UCSB International Capture The Flag (iCTF)

## **MEDIA COVERAGE (EXCERPT)**

### **Personal Profiles**

- Kurier: *Exzellente, jung, weiblich: Sie will das Web sicher machen* May 2017
- Oberösterreichische Nachrichten: *Eine Linzerin im Team der weltbesten Hacker* December 2011

### **Drammer**

- Der Standard: *Drammer: Neuer Hardwareangriff gefährdet Android-Smartphones* October 2016
- Der Spiegel: *Forscher knacken Android-Smartphones* October 2016
- Neue Zürcher Zeitung: *Android für Rowhammer und Dirty Cow anfällig* October 2016
- WIRED: *Elegant Physics (and Some Down and Dirty Linux Tricks) Threaten Android Phones* October 2016
- Ars Technica: *Using Rowhammer bitflips to root Android phones is now a thing* October 2016
- Daily Mail: *The Rowhammer bug that can threaten millions of Android devices: Experts reveal 'bit flip' flaw that attacks memory chips* October 2016
- The Register: *App proves Rowhammer can be exploited to root Android phones – and there's little Google can do to fully kill it* October 2016
- The Inquirer: *Rowhammer: Memory chip flaw enables hackers to root Android devices* October 2016

### **ReCon**

- Boston Globe: *Harvard, Northeastern's privacy tools flag apps that leak personal data* November 2015
- NBC News: *ReCon App Watches Your Other Apps for Leaked Private Info* November 2015
- MSN News: *Hackers may hit home for the holidays* November 2015
- Christian Science Monitor: *Want to stop apps from sharing your data?* November 2015
- New Scientist: *Privacy apps to help fight back against companies that track you* November 2015

### **Andrubis & Marvin**

- SRF Kassensturz: *Werbeanrufe aufs Handy: Liefern Apps Callcentern unbemerkt Daten?* April 2015
- Futurezone: *TU-Wien-App zeigt Gefahren unter Android auf* October 2014
- ORF Newton: *Cyberkriminalität (TV segment on Andrubis)* March 2013