

# 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

- Detection of malicious Android applications 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

*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)  
San Diego, California, USA, February 2018 (to appear)

*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)  
San Diego, California, USA, February 2017

*Drammer: Deterministic Rowhammer Attacks on Mobile Platforms*

Victor van der Veen, Yanick Fratantonio, Martina Lindorfer, Daniel Gruss, Clementine Maurice, Giovanni Vigna, Herbert Bos, Kaveh Razavi, Cristiano Giuffrida  
ACM Conference on Computer and Communications Security (CCS)  
Vienna, Austria, 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)  
Singapore, 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)  
Christ Church, Barbados, 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)  
Taichung, Taiwan, 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)  
London, UK, 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)  
Tainan, Taiwan, 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)  
Orlando, Florida, USA, December 2012

*Detecting Environment-Sensitive Malware*

Martina Lindorfer, Clemens Kolbitsch, Paolo Milani Comparetti  
International Symposium on Recent Advances in Intrusion Detection (RAID)  
Menlo Park, California, USA, 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)  
Wroclaw, Poland, 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)  
Kyoto, Japan, 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)  
San Jose, California, USA, 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)  
Washington, D.C., USA, 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)  
Berlin, Germany, 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 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\_Y0u 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: *Exzellent, 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