# Martina Lindorfer

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Institute of Logic and Computation (192/6)
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## EDUCATION

**Doctor of Technical Sciences (Dr. techn.)**                July 2011 – November 2015
TU Wien, 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
TU Wien, 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

**Assistant Professor (Tenure Track)**                since October 2018
*TU Wien*, Vienna, Austria

**Postdoctoral Researcher**                April 2016 – June 2018
*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)

**Research Assistant**                July 2011 – September 2014
*Secure Systems Lab, TU Wien*, 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, TU Wien*, 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**

*MineSweeper: An In-depth Look into Drive-by Cryptocurrency Mining and Its Defense*
 Radhesh Krishnan Konoth, Emanuele Vineti, Veelasha Moonsamy, Martina Lindorfer, Christopher Kruegel,
 Herbert Bos, Giovanni Vigna
 ACM Conference on Computer and Communications Security (CCS), October 2018

*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

*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

*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, TU Wien, 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

- Cor Baayen Young Researcher Award from the European Research Consortium for Informatics     October 2018
  and Mathematics (ERCIM)
- Pwnie nomination for Best Privilege Escalation Bug for Rampage     August 2018
- Best Research Award at the Int. Conference on Computing Systems (CompSys) for GuardION     June 2018
- 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 (CVE-2016-6728, marked as critical) — November 2016
- 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 Systers 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 TU Wien — April 2014

### Program Committee Member

- USENIX Security Symposium (USENIX Security) — 2019
- ACM ASIA Conference on Computer and Communications Security (ASIACCS) — 2019
- 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
- IEEE Transactions on Mobile Computing
- 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     October – December 2017
  to learn new programming languages
- Lead development and maintenance of Andrubis,     June 2012 – April 2016
  a large-scale public dynamic analysis sandbox for Android applications
- Conception of a one-day workshop on mobile malware analysis techniques     August 2015
- Conception of a four-day workshop on dynamic malware analysis techniques,     August 2014
  analysis evasion and countermeasures
- Conception of a techNIKE workshop teaching Internet security topics and     June 2014
  security and privacy awareness in online social networks to girls aged 10–14
- Member of the We_0wn_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

### Rowhammer Attacks & Defense

- 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*     October 2016
  *reveal 'bit flip' flaw that attacks memory chips*
- The Register: *App proves Rowhammer can be exploited to root Android phones – and*     October 2016
  *there's little Google can do to fully kill it*
- The Inquirer: *Rowhammer: Memory chip flaw enables hackers to root Android devices*     October 2016

### Privacy Leak Detection

- 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

### Malware Analysis

- 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