Martina Lindorfer

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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)   starting 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)
- Analysis of iOS8 security features

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, <u>Martina Lindorfer</u>, 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, <u>Martina Lindorfer</u>, 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, <u>Martina Lindorfer</u>, 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, <u>Martina Lindorfer</u>, 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, <u>Martina Lindorfer</u>, 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, <u>Martina Lindorfer</u>, 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, <u>Martina Lindorfer</u>, 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, <u>Martina Lindorfer</u>, 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
<u>Martina Lindorfer</u>, 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

- 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 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 to learn new programming languages — since October 2017

- 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