

# Academic Curriculum Vitæ

## Details

**Professional titles:** FH-Prof.  
**Titles:** Dipl.-Ing. (FH) Dipl.-Ing. Dr. techn.  
**Name:** **Andreas Unterweger**  
**Address:** Franz-Martin-Straße 4B/3, 5020 Salzburg, Austria  
**Telephone number:** (43-664) 178 15 78  
**Email address:** andreas-unterweger@andreas-unterweger.eu  
**Date of birth:** July 31, 1986  
**Languages:** German (mother tongue), English (fluent),  
French (conversational), Italian and Spanish (basic)

## Research interests

- Smart Grid privacy and security
- Real-time video coding (especially H.264- and H.265-based video coding)

## Education

- March 2012 – February 2015: Doctoral degree *Dr. techn.* (thesis advisor: Univ.-Prof. Mag. Dr. Andreas Uhl) in Engineering Sciences, *Department of Computer Sciences*, University of Salzburg, Salzburg, Austria.
- October 2009 – December 2011: Master's degree *Dipl.-Ing.* (with distinction; thesis advisor: Univ.-Prof. Dr.-Ing. Christoph Kirsch) in Applied Computer Science, *Department of Computer Sciences*, University of Salzburg, Salzburg, Austria.
- September 2004 – June 2008: Diploma degree *Dipl.-Ing. (FH)* (with distinction; thesis advisor: Dipl.-Ing. (FH) Peter Haber) in Information Technology and Systems Management, *School of Information Technology and Systems Management*, Salzburg University of Applied Sciences, Puch bei Hallein, Austria.

## Work experience

### Recent lecturing positions

- February 2016 – now: External lecturer at the *School of Web Business & Technology*, Kufstein University of Applied Sciences, Kufstein, Austria.

- March 2015 – now: Senior lecturer (teaching professor (*FH-Prof.*) since May 2016) at the *School of Information Technology and Systems Management*, Salzburg University of Applied Sciences, Puch bei Hallein, Austria.
- February 2012 – January 2015: External lecturer at the *School of Information Technology and Systems Management*, Salzburg University of Applied Sciences, Puch bei Hallein, Austria.

### Recent research positions

- January 2018 – now: Senior researcher at the *Center for Secure Energy Informatics*, Salzburg University of Applied Sciences, Puch bei Hallein, Austria.
- January 2018 – March 2018: Postdoctoral fellow at the *School of Electrical and Computer Engineering*, Cornell University, Ithaca, New York, USA.
- March 2015 – December 2017: Senior researcher at the *Josef Ressel Center for User-Centric Smart Grid Privacy, Security and Control*, Salzburg University of Applied Sciences, Puch bei Hallein, Austria.

### Recent industry positions

- July 2018 – now: Software engineer for low-delay streaming (Lead Video Specialist since September 2019), NativeWaves, Himmelreich, Austria (until April 2019 Puch bei Hallein, Austria).
- July 2017 – August 2017: Software engineer for low-delay streaming, NativeWaves, Puch bei Hallein, Austria.
- December 2012 – March 2015: Pro-bono scientific and technical consultant on image processing and computer vision, Authentic Vision, Salzburg, Austria.
- June 2012 – November 2012: Video coding consultant (freelancer), streamlife AG, Potsdam, Germany.
- July 2008 – August 2009: Software engineer and video codec specialist, Ocilion IPTV Technologies, Ried im Innkreis, Austria.

### Selected open source project contributions

- *Multimedia Lecture Demonstrations* (illustration of core concepts of audio, image and video processing as well as related topics): Author, <https://github.com/dustsigns/lecture-demos>, 2016-2020.
- *FFmpeg* and *Libav* (audio and video coding libraries): API usage example for audio transcoding with extensive documentation, <https://github.com/FFmpeg/FFmpeg> and <https://github.com/libav/libav>, 2013-2015 and 2017-2018.

## Selected awards

- Christian-Doppler award for scientific papers, designs and inventions in the field of natural sciences, The Federal State of Salzburg, Salzburg, Austria, December 2019.
- Science award, Chamber of Labour Salzburg, Salzburg, Austria, November 2015.
- Prize of appreciation, Federal Austrian Ministry of Science and Research, Vienna, Austria, November 2008.

## Selected publications

### Book chapters

- Knirsch, Fabian, Andreas Unterweger, Günther Eibl, and Dominik Engel: Privacy-Preserving Smart Grid Tariff Decisions with Block-Chain-Based Smart Contracts. In Rivera, Wilson (editor): Sustainable Cloud and Energy Services – Principles and Practice, chapter 4, pages 85–116. Springer International Publishing, Cham, Switzerland, September 2017, ISBN 978-3-319-62237-8. Download.

### Journal articles

- Unterweger, Andreas, Sanaz Taheri-Boshrooyeh, Günther Eibl, Fabian Knirsch, Alptekin Küpçü, and Dominik Engel: Understanding Game-Based Privacy Proofs for Energy Consumption Aggregation Protocols. IEEE Transactions on Smart Grid, 10(5):5514–5523, September 2019. Download.
- Unterweger, Andreas and Dominik Engel: Resumable Load Data Compression in Smart Grids. IEEE Transactions on Smart Grid, 6(2):919–929, March 2015. Download.

### Conference papers

- Burkhart, Sebastian, Andreas Unterweger, Günther Eibl, and Dominik Engel: Detecting Swimming Pools in 15-Minute Load Data. In 2018 17th IEEE International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom), pages 1651–1655, New York, New York, USA, August 2018. IEEE. Download.
- Unterweger, Andreas, Fabian Knirsch, Christoph Leixnering, and Dominik Engel: Lessons Learned from Implementing a Privacy-Preserving Smart Contract in Ethereum. In 2018 9th IFIP International Conference on New Technologies, Mobility & Security (NTMS), pages 1–5, Paris, France, February 2018. IEEE. Download.

## Selected conference organization activities

### Publication chair

- 8th D-A-CH+ Conference on Energy Informatics, Salzburg, Austria, September 2019.

### Program chair

- Workshop on Privacy Enhancing Technologies and Security Solutions for the Smart Grid User Domain (PRETSELS), Salzburg, Austria, September 2015.

## Selected review activities

### Journals

- IEEE Transactions on Smart Grid, IEEE, 2015-2017 and 2019-2020.
- Energy Reports, Elsevier, 2020.
- IEEE Transactions on Power Delivery, IEEE, 2019.
- IEEE Transactions on Industrial Informatics, IEEE, 2017.
- IEEE Transactions on Power Systems, IEEE, 2016.
- European Association for Signal Processing (EURASIP) Journal on Information Security, Springer, 2015-2018.
- IEEE Transactions on Circuits and Systems for Video Technology, IEEE, 2014, 2015 and 2017.
- Signal Processing: Image Communication, Elsevier, 2014 and 2016-2018.

## Teaching

### Lectures

- IT Security. *School of Web Business & Technology* (Bachelor's degree program, semester 4), Kufstein University of Applied Sciences, Kufstein, Austria, summer semesters 2017-2020.
- Media Technology. *School of Information Technology and Systems Management* (Bachelor's degree program, semester 4), Salzburg University of Applied Sciences, Puch bei Hallein, Austria, summer semesters 2014-2020.
- Media Informatics. *School of Information Technology and Systems Management* (Bachelor's degree program, semester 5), Salzburg University of Applied Sciences, Puch bei Hallein, Austria, winter semesters 2013/2014-2020/2021.

## Guest lectures

- Face encryption in surveillance videos. Warsaw University of Technology, Warsaw, Poland, May 2017.
- Privacy in Smart Grids. Warsaw University of Technology, Warsaw, Poland, May 2017.
- Selected coding methods in H.265/HEVC. Warsaw University of Technology, Warsaw, Poland, May 2017.
- Real-time H.264 Video Coding for Telemedicine Applications. ESIGETEL, Avon, France, November 2010 and November 2011.

## Recent courses

- Laboratory for IT Security Engineering. *School of Business Informatics and Digital Innovation* (Bachelor's degree program, semester 5), Salzburg University of Applied Sciences, Puch bei Hallein, Austria, winter semester 2020/2021.
- Laboratory for Cryptology. *School of Information Technology and Systems Management* (Bachelor's degree program, semester 4), Salzburg University of Applied Sciences, Puch bei Hallein, Austria, summer semesters 2018-2020.
- IT Security Lab. *School of Web Business & Technology* (Bachelor's degree program, semester 4), Kufstein University of Applied Sciences, Kufstein, Austria, summer semesters 2016-2020.
- Laboratory for Media Technology. *School of Information Technology and Systems Management* (Bachelor's degree program, semester 4), Salzburg University of Applied Sciences, Puch bei Hallein, Austria, summer semesters 2014-2020.
- Laboratory for Media Informatics. *School of Information Technology and Systems Management* (Bachelor's degree program, semester 5), Salzburg University of Applied Sciences, Puch bei Hallein, Austria, winter semesters 2013/2014-2019/2021.

## Selected supervised theses

- Fröhlich, Alexander: Vergleich von alternativen Farbfilterlayouts mit dem Bayer-Pattern. Master's thesis, Salzburg University of Applied Sciences, Puch bei Hallein, Austria, September 2013.
- Niedermüller, Armin: Detecting Obstacles in 3D Point Clouds for Collaborative Robot Environments. Bachelor 2 thesis, Salzburg University of Applied Sciences, Puch bei Hallein, Austria, June 2020.