

# Curriculum Vitae — Roman Beneder



Business University of Applied Sciences Technikum Wien  
Address Höchstädtplatz 6  
1200 Vienna, Austria  
email: roman.beneder@technikum-wien.at  
URL: <http://embsys.technikum-wien.at/staff/beneder>

Personal Born: October 11, 1985, Vienna, Austria (Nationality: Austrian)  
Data Languages: German (native), English  
Marital Status: unmarried

## Current Position

Head of the competence center Embedded Systems, Senior Researcher & Lecturer, University of Applied Sciences Technikum Wien, Vienna, Austria.

## Areas of Specialization

embedded systems, embedded systems debugging, ARM-based microcontrollers,  $\mu$ C-Linux device driver programming, printed circuit board design (schematic, layout), Embedded Linux application programming, multicore microcontroller programming, Real-time operating systems

## Memberships

since 2014 Member of the “*Institute of Electrical and Electronics Engineers*” (IEEE)

## Appointments

since 2023 Projectmanager at the Department of Electronic Engineering, Digital Signal Processing in MIMO and dispersive Systems, managed by Infineon Technologies Austria AG  
since 2020 Head of the competence center Embedded Systems at the Department of Electronic Engineering  
since 2018 Projectmanager at the Department of Electronic Engineering, Emerging Applications Lab (EAL), managed by Infineon Technologies Austria AG  
2015–2018 Projectmanager at the Department of Electronic Engineering, MA23 project OpenLab - Open Laboratory  
2013–2015 Researcher at the Department of Electronic Engineering, managed by the Christian Doppler Gesellschaft (CDG): Josef Ressel Center for Verification of Embedded Computing Systems  
2012–2013 Researcher at the Department of Electronic Engineering, FFG Innovation Cheque: dandel.io - Development of a stereo audio-recorder for smartphones  
2009–2012 Junior Researcher at the Department of Electronic Engineering, MA23 project Embedded Platforms  
2007–2009 Lab assistant at the Department of Electronic Engineering, University of Applied Science Technikum Wien.  
until 2005 Several short term jobs at Schwechater Kabelwerke GmbH, Conrad Electronics, Austrian Research Center Seibersdorf Research GmbH.

## Education

- 2011 MSc., Thesis: “*Development of an OpenOCD compatible Debugger for ARM - CMARMJTAG*”, advisor: Dipl.-Ing. Michael Kramer, co-advisor: Dipl.-Ing. (FH) Martin Zauner, University of Applied Science Technikum Wien
- 2005 Ing., Department of Electrical Engineering and Computer Engineering – specialized in biomedical engineering – Higher Technical Education Institute TGM, Vienna

## Industry-Funded Projects

- since 2023 “*Digital Signal Processing in MIMO and dispersive Systems*”, managed by Infineon Technologies Austria AG
- since 2018 “*Emerging Application Lab (EAL)*”, managed by Infineon Technologies Austria AG

## Public-Funded Projects

- 2015–2018 “*OpenLab - Open Laboratory*”, MA23
- 2013–2015 “*Josef Ressel Center for Verification of Embedded Computing Systems*”, managed by the Christian Doppler Forschungsgesellschaft (CDG)
- 2012–2013 “*Audio-Recorder for Smartphones*”, dandel.io - Development of a stereo audio-recorder for smartphones
- 2009–2012 “*Embedded Platforms*”, MA23

## Publications

### Peer-Reviewed Conference Papers

- [C17] Roman Beneder, Patrick Schmitt, Clemens Koernyefalvy: A Model-Based Approach for Remote Development of Embedded Software for Object Avoidance Applications, 9<sup>th</sup> IEEE International Conference on Automation, Robotics and Applications ICARA2023, UNITED ARAB EMIRATES, ABU DHABI, February 2023.
- [C16] Roman Beneder, Patrick Schmitt, Clemens Koernyefalvy: A Model-Based Approach for Robotics Education with Emphasis on Embedded Systems, 9<sup>th</sup> IEEE International Conference on Automation, Robotics and Applications ICARA2023, UNITED ARAB EMIRATES, ABU DHABI, February 2023.
- [C15] Jessica Giovagnola, Miguel Molina Fernandez, Roman Beneder, Patrick Schmitt, Manuel Pegalajar Cuellar, Diego Pedro Morales Santos: *Multisensor Avionics Architecture for BVLOS Drone Services*, 12<sup>th</sup> IEEE EASN International Conference EASN2022, SPAIN, BARCELONA, October 2022.
- [C14] Roman Beneder, Patrick Schmitt, Markus Lechner: *Development of a Signal Generator for Study Programs Dedicated to Electronic Engineering*, IEEE Global Engineering Education Conference EDUCON2018, SPAIN, SANTA CRUZ DE TENERIFE, April 2018.
- [C13] Roman Beneder, Patrick Schmitt, Markus Lechner: *Development of a Signal-Toolkit to Increase the Availability of Measurement Equipment at Courses Dedicated to Technical Sciences*, IEEE Global Engineering Education Conference EDUCON2018, SPAIN, SANTA CRUZ DE TENERIFE, April 2018.
- [C12] Roman Beneder, Patrick Schmitt, Markus Lechner: *Development of a low-cost, open-source measurement equipment for undergraduate courses dedicated to embedded systems*, EUROCON 2017 - 17<sup>th</sup> IEEE International Conference on Smart Technologies, MACEDONIA, OHRID, July 2017.
- [C11] Roman Beneder, Patrick Schmitt, Markus Lechner: *Increasing the accessibility of measurement equipment for undergraduate courses dedicated to Embedded Systems*, IEEE Global Engineering Education Conference EDUCON2017, GREECE, ATHENS, April 2017.
- [C10] Roman Beneder, Patrick Schmitt, Markus Lechner, Peter Roessler: *OpenLab - Development of low-cost, open-source laboratory equipment for courses dedicated to Embedded Systems*, X International GUIDE Conference, AUSTRIA, VIENNA, September 2015.
- [C9] Bernd, Glatz; Harald Schuster; Thomas Rauscher; Roman, Beneder; Martin, Horauer: *Deadlock*

*Detection Runtime Service for Embedded Linux*, ETFA15 - The 20<sup>th</sup> IEEE International Conference on Emerging Technologies & Factory Automation, LUXEMBOURG, LUXEMBOURG, September 2015.

- [C8] Bernd, Glatz; Roman, Beneder; Thomas Rauscher; Martin, Horauer: *Memory Leak Detection Runtime-Service for Embedded Linux Devices*, ETFA14 - The 19<sup>th</sup> IEEE International Conference on Emerging Technologies & Factory Automation, BARCELONA, SPAIN, September 2014.
- [C7] Wolfgang, Fleck; Dominik, Hoellmueller; Gregor, Aradi; Johannes, Wittmann; Bernd, Glatz; Roman, Beneder; Martin, Horauer: *dandel.io - Design of an Audio-Recorder Accessory*, MESA14 - The 10<sup>th</sup> IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications, SENIGALLIA, ITALY, September 2014.
- [C6] Bernd, Glatz; Beneder, Roman; Martin, Horauer: *Runtime Verification Infrastructure for Embedded Linux*, MESA14 - The 10<sup>th</sup> IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications, SENIGALLIA, ITALY, September 2014.
- [C5] Brejcha, Philipp; Beneder, Roman; Kramer, Michael: *A Two Stage Approach for a Cost-Effective and Versatile Debugging Unit and Starter Platform*, MESA12 - The 8<sup>th</sup> IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications, SUZHOU, CHINA, July 2012.
- [C4] Brejcha, Philipp; Beneder, Roman; Kramer, Michael: *Increasing the Attractivity of Embedded System Courses*, IEEE EDUCON Education Engineering 2012 - Collaborative Learning & New Pedagogic Approaches in Engineering Education, MARAKESCH, MAROCCO, April 2012.
- [C3] Brejcha, Philipp; Beneder, Roman; Kramer, Michael; Balog, Peter: *Dedicated Infrastructure for Academic Courses Related to Embedded Systems Design Supporting Students in Distance Learning Programs*, Proceedings of the 7<sup>th</sup> International ASME/IEEE Conference on Mechatronics & Embedded Systems & Applications ASME/IEEE MESA 2011, WASHINGTON, DC, USA, August 2011.
- [C2] Brejcha, Philipp; Beneder, Roman; Kramer, Michael: *Reducing the Entrance Hurdle in Embedded System Engineering Courses*, The IEEE Region 8 EUROCON 2011 International Conference on Computer as a Tool joint with the Conference on Telecommunications, LISBON, PORTUGAL, April 2011.
- [C1] Brejcha, Philipp; Beneder, Roman; Kramer, Michael: *New Approaches for a Distance Learning Course about Embedded Systems*, IEEE EDUCON Education Engineering 2011-Learning Environments and Ecosystems in Engineering Education, AMMAN, JORDAN, April 2011.

#### **Peer-Reviewed Conference Posters**

- [P1] Beneder, Roman: *Innovative concepts for Embedded Systems courses*, FHK - 7<sup>th</sup> Association of Austrian Universities of Applied Sciences, DORNBIRN, AUSTRIA, April 2013.

## Academic Courses

### University of Applied Sciences Technikum Wien

- 2022/23 R. Beneder: *Embedded Systems Software 1*, Embedded Systems  
R. Beneder: *Systemintegration*, Electronic Engineering  
R. Beneder, P. Schmitt: *Embedded Systems*, Electronic/Business - Distance Learning  
R. Beneder, P. Schmitt: *Electronic Project 2*, Electronic/Business - Distance Learning  
R. Beneder: *Embedded Systems Project 1*, Embedded Systems  
R. Beneder: *supervising several Master's Thesis*, Embedded Systems
- 2021/22 R. Beneder: *Embedded Software*, Embedded Systems  
R. Beneder, P. Schmitt: *Digital Measurement Technology*, Electronic Engineering  
R. Beneder, P. Schmitt: *Embedded Systems*, Electronic/Business - Distance Learning  
R. Beneder, P. Schmitt: *Electronic Project 2*, Electronic/Business - Distance Learning  
R. Beneder: *Embedded Systems Project*, Embedded Systems  
R. Beneder: *Electronic Project*, Electronic Engineering  
R. Beneder: *supervising several Master's Thesis*, Embedded Systems
- 2020/21 R. Beneder: *Embedded Software*, Embedded Systems  
R. Beneder, P. Schmitt: *Digital Measurement Technology*, Electronic Engineering  
R. Beneder, P. Schmitt: *Embedded Systems*, Electronic/Business - Distance Learning  
R. Beneder, P. Schmitt: *Electronic Project 2*, Electronic/Business - Distance Learning  
R. Beneder: *Embedded Systems Project*, Embedded Systems  
T. Kittenberger, R. Beneder: *Embedded Control Systems 2*, Embedded Systems  
R. Beneder: *Electronic Project*, Electronic Engineering  
R. Beneder: *supervising several Master's Thesis*, Embedded Systems
- 2019/20 R. Beneder: *Electronic Basics 1*, Electronic Engineering  
R. Beneder: *Electronic Basics 2*, Electronic Engineering  
T. Kittenberger, R. Beneder: *Embedded Control Systems 2*, Embedded Systems  
R. Beneder, P. Schmitt: *Digital Measurement Technology*, Electronic Engineering  
R. Beneder, P. Schmitt: *Embedded Systems*, Electronic/Business - Distance Learning  
R. Beneder, P. Schmitt: *Electronic Project 2*, Electronic/Business - Distance Learning  
R. Beneder: *Embedded Systems Project*, Embedded Systems  
R. Beneder: *Electronic Project*, Electronic Engineering  
R. Beneder: *supervising several Master's Thesis*, Embedded Systems
- 2018/19 R. Beneder: *Electronic Basics 1*, Electronic Engineering  
R. Beneder: *Electronic Basics 2*, Electronic Engineering  
M. Horauer, R. Beneder: *Real-Time Operating Systems*, Electronic Engineering  
M. Horauer, R. Beneder: *Embedded Systems Software*, Electronic Engineering  
T. Kittenberger, R. Beneder: *Embedded Control Systems 1*, Embedded Systems  
T. Kittenberger, R. Beneder: *Embedded Control Systems 2*, Embedded Systems  
R. Beneder, P. Schmitt: *Digital Measurement Technology*, Electronic Engineering  
R. Beneder, P. Schmitt: *Embedded Systems*, Electronic/Business - Distance Learning  
R. Beneder, P. Schmitt: *Electronic Project 2*, Electronic/Business - Distance Learning  
R. Beneder: *Embedded Systems Project*, Embedded Systems  
R. Beneder: *Electronic Project*, Electronic Engineering  
R. Beneder: *supervising several Master's Thesis*, Embedded Systems

- 2017/18 M. Horauer, R. Beneder: *Real-Time Operating Systems*, Electronic Engineering  
M. Horauer, R. Beneder: *Embedded Systems Software*, Electronic Engineering  
T. Kittenberger, R. Beneder: *Embedded Control Systems 1*, Embedded Systems  
R. Beneder, P. Schmitt: *Embedded Systems*, Electronic/Business - Distance Learning  
R. Beneder, P. Schmitt: *Electronic Project 2*, Electronic/Business - Distance Learning  
R. Beneder: *Embedded Systems Project*, Embedded Systems  
R. Beneder: *Electronic Project*, Electronic Engineering  
R. Beneder: *supervising several Master's Thesis*, Embedded Systems
- 2016/17 M. Horauer, R. Beneder: *Real-Time Operating Systems*, Electronic Engineering  
M. Horauer, R. Beneder: *Embedded Systems Software*, Electronic Engineering  
T. Kittenberger, R. Beneder: *Embedded Control Systems 1*, Embedded Systems  
R. Beneder, P. Schmitt: *Embedded Systems*, Electronic/Business - Distance Learning  
R. Beneder, P. Schmitt: *Electronic Project 2*, Electronic/Business - Distance Learning  
R. Beneder: *Embedded Systems Project*, Embedded Systems  
R. Beneder: *Electronic Project*, Electronic Engineering  
R. Beneder: *supervising several Master's Thesis*, Embedded Systems
- 2015/16 M. Horauer, R. Beneder: *Real-Time Operating Systems*, Electronic Engineering  
M. Horauer, R. Beneder: *Embedded Systems Software*, Electronic Engineering  
T. Kittenberger, R. Beneder: *Embedded Control Systems 1*, Embedded Systems  
R. Beneder, P. Schmitt: *Embedded Systems*, Electronic/Business - Distance Learning  
R. Beneder, P. Schmitt: *Electronic Project 2*, Electronic/Business - Distance Learning  
R. Beneder: *Embedded Systems Project*, Embedded Systems  
R. Beneder: *Electronic Project*, Electronic Engineering  
R. Beneder: *supervising several Master's Thesis*, Embedded Systems
- 2014/15 M. Horauer, R. Beneder: *Real-Time Operating Systems*, Electronic Engineering  
M. Horauer, R. Beneder: *Embedded Systems Software*, Electronic Engineering  
T. Kittenberger, R. Beneder: *Embedded Control Systems 1*, Embedded Systems  
R. Beneder, P. Brejcha: *Embedded Systems*, Electronic/Business - Distance Learning  
R. Beneder, P. Brejcha: *Electronic Project 2*, Electronic/Business - Distance Learning  
R. Beneder: *Embedded Systems Project*, Embedded Systems  
R. Beneder: *Electronic Project*, Electronic Engineering  
R. Beneder: *supervising several Master's Thesis*, Embedded Systems
- 2013/14 M. Horauer, R. Beneder: *Real-Time Operating Systems*, Electronic Engineering  
M. Horauer, R. Beneder: *Embedded Systems Software*, Electronic Engineering  
T. Kittenberger, R. Beneder: *Embedded Control Systems 1*, Embedded Systems  
R. Beneder, P. Brejcha: *Embedded Systems*, Electronic/Business - Distance Learning  
R. Beneder, P. Brejcha: *Electronic Project 2*, Electronic/Business - Distance Learning  
R. Beneder: *Embedded Systems Project*, Embedded Systems  
R. Beneder: *Electronic Project*, Electronic Engineering  
R. Beneder: *supervising several Master's Thesis*, Embedded Systems
- 2012/13 M. Horauer, R. Beneder: *Real-Time Operating Systems*, Electronic Engineering  
M. Horauer, R. Beneder: *Embedded Systems Software*, Electronic Engineering  
R. Beneder: *MatLab*, Embedded Systems - Selected Topics  
R. Beneder: *Proteus*, Embedded Systems - Selected Topics  
R. Beneder, P. Brejcha: *Embedded Systems*, Electronic/Business - Distance Learning

R. Bener, P. Brejcha: *Electronic Project 2*, Electronic/Business - Distance Learning  
T. Kittenberger, R. Bener: *Embedded Control Systems 1 & 2*, Embedded Systems

2011/12 R. Bener: *MatLab*, Embedded Systems - Selected Topics  
R. Bener: *Proteus*, Embedded Systems - Selected Topics  
R. Bener, P. Brejcha: *Embedded Systems*, Electronic/Business - Distance Learning  
R. Bener, P. Brejcha: *Electronic Project 2*, Electronic/Business - Distance Learning  
T. Kittenberger, R. Bener: *Embedded Control Systems 1 & 2*, Embedded Systems

2010/11 R. Bener, P. Brejcha: *Embedded Systems*, Electronic/Business - Distance Learning  
R. Bener, P. Brejcha: *Electronic Project 2*, Electronic/Business - Distance Learning  
T. Kittenberger, R. Bener: *Embedded Control Systems 1 & 2*, Embedded Systems