Andreas M. Schuster

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Personal Information

Surname:	Schuster
Given Name:	Andreas Michael
Date of Birth:	Oct. 2nd, 1983
Place of Birth:	Berlin, Germany

Degrees

06/2016	**Doctor of Medical Science (Dr. scient. med.)** Medical University of Graz (Graz, Österreich)
03/2011	**Diploma in Electrical Engineering (Dipl.-Ing.)** Technical University of Berlin (Berlin, Deutschland)

Skills

Programming Languages	Bash, C, C#, C++, Python
Microcontrollers	ATXmega, ATmega, AVR32, ESP32, Intel Nios II, Nios II, Nordic nRF, STM32, Texas Instruments MCUs
Communication	BLE, CAN, CANopen, DMA, Ethernet, GenICam, GigE Vision, I2C, MQTT, RS232, RS422, RS485, SPI, TCP/IP, UART, USART
Tools	Altium Designer, Arm Keil, Artifactory, Busybox, CANape, CMake, Confluence, Container, Crosstool-NG, Docker, Eclipse, Excel, Git, Github, Gitlab, IAR Embedded Workbench, J-Link, Jekyll, Jenkins, Jira, LabWindows/CVI, MCUXpresso, Make, Material for MkDocs, MkDocs, Podman, Redmine, ST LINK, STM32CubeIDE, STM32CubeMX, SVN, U-Boot, Unity, VectorCast, Visual Studio, Word, gTest, pytest
Miscellaneous	ADC, Agile, Bare-Metal, Bootloader, CI/CD, DAC, Embedded Linux, FPGA, FreeRTOS, Hardware Abstraction Layer, IEC 60601-1-6, IEC 62304, IEC 62366, ISO 13485, ISO 14971, ISO 26262, ISO 9001, In-Vitro-Diagnostic Regulation (IVDR), Interrupt, Kernel, Linux, Medical Device Regulation (MDR), Modular Architecture, RTOS, Raspberry Pi, Scrum, State Machine, User Interface, V-Model, Wasserfall, Windows, Zephyr

Projects

04/2025 - present

Lemonbee
Partner: Lemonbee
Startup

Development of a power distribution solution for motorhomes

Tools and Technologies:
C, Jira, Confluence, Git, Github, STM32, ESP32, CAN, CANopen, UART, Zephyr

Tasks:
- Extension/adaptation of the existing prototype software for some parts the power distribution system
- Development of missing firmware for others modules of the system
- Automation of the firmware build process (Continuous Integration – CI)

08/2024 - present

EOL Test Stand
Partner: AVL DiTEST
Self Employed

Adaptation of an End-Of-Line (EOL) test stand software for a new test device

Tools and Technologies:
C#, Git, Visual Studio, Artifactory, MQTT, Scrum

Tasks:
- Clarification of interface (MQTT) and test specifications
- Implementation of the MQTT interface within the test stand software
- Implementation and integration of EOL tests for the new device into the test stand software

04/2024 - 07/2024

STM32F10x HAL
Partner: AVL DiTEST
Self Employed

Development of a Hardware Abstraction Layer (HAL) for STM32F10x microcontrollers

Tools and Technologies:
C, Git, CMake, Make, STM32, Hardware Abstraction Layer

Tasks:
- Clarification of the requirements for the HAL
- Implementation of the individual modules of the HAL
- Testing the modules on a development board

Projects

02/2024 - 03/2024
09/2024 - 09/2024

Documents as Code Tutorial
Private Project

Tutorial on using Markdown and Pandoc for document creation

Tools and Technologies:
Python, MkDocs, Material for MkDocs, Git, Github, Make, CMake, Docker, Podman, Container

Tasks:

- Creating a website using MkDocs and Material for MkDocs
- Writing and publishing the tutorial
- Creating a sample document

Tutorial Website
My Docs as Code Docker Container
Source Code for Docs as Code Container

10/2023 - 12/2023
01/2025 - 02/2025

Embedded Linux Setup Tutorial
Private Project

Tutorial on setting up an embedded Linux system on a Raspberry Pi

Tools and Technologies:
C, Crosstool-NG, U-Boot, Docker, Podman, Busybox, Make, Jekyll, Linux, Embedded Linux, Raspberry Pi, Bootloader, Kernel

Tasks:

- Created a guide for building a cross toolchain
- Created a guide for building U-Boot for a Raspberry Pi
- Created a guide for building a Linux kernel for a Raspberry Pi
- Created a guide for building a Linux root filesystem for a Raspberry Pi

Summary post for the tutorial

Projects

04/2023 - 10/2023
03/2024 - 04/2024
01/2025 - jetzt

Support for MEDS as a freelancer
Partner: Spath Micro Electronic Design GmbH (MEDS)
Self Employed

As a freelancer, I supported MEDS at various times on different projects. Due to a non-disclosure agreement, I am currently unable to provide specific details about the individual projects. I am in the process of clarifying whether I will be able to share more information in the future. Until then, only a general summary is available.

Tools and Technologies:
C, Python, Eclipse, Excel, Git, Github, Make, SVN, Word, Nios II, STM32, Ethernet, GigE Vision, GenICam, Agile, Modular Architecture, FPGA, User Interface, State Machine

Tasks:

- Requirements analysis for firmware projects
- Concept and architecture design for firmware projects
- Firmware implementation
- Implementation of code generators

Projects

01/2022 - 03/2023
07/2020 - 06/2021
10/2017 - 02/2020

Employment at MEDS
Partner: Spath Micro Electronic Design GmbH (MEDS)
Employed

Summary of my activities and projects during my employment at MEDS

Tools and Technologies:
C, C++, Python, Bash, Eclipse, STM32CubeIDE, STM32CubeMX, Arm Keil, MCUXpresso, IAR Embedded Workbench, Git, Github, Gitlab, SVN, Jira, Confluence, Redmine, Word, Excel, gTest, Unity, pytest, VectorCast, CANape, Jenkins, ST LINK, J-Link, Make, CMake, Altium Designer, STM32, Nordic nRF, Texas Instruments MCUs, Intel Nios II, USART, UART, I2C, SPI, CAN, Ethernet, TCP/IP, BLE, RS232, RS422, RS485, DMA, GigE Vision, GenICam, ADC, DAC, Bare-Metal, FreeRTOS, RTOS, Embedded Linux, Windows, Interrupt, CI/CD, Agile, Scrum, Wasserfall, V-Model, ISO 9001, ISO 13485, ISO 26262

Tasks:

- Requirements analysis
- Software development
- Software design
- Software architecture
- Software testing (unit test/module test), including in the automotive industry
- Software integration
- System architecture
- Firmware implementation
- Low-level (hardware-near) programming
- Circuit design
- PCB design

MEDS Homepage

01/2025 - jetzt

Certified Professional for Medical Software (CPMS)
Private Project

Preparation for certification as a “Certified Professional for Medical Software (CPMS)”

Tools and Technologies:
Medical Device Regulation (MDR), In-Vitro-Diagnostic Regulation (IVDR), ISO 13485, ISO 14971, IEC 62304, IEC 62366, IEC 60601-1-6

Professional Career (Research and Development)

04/2023 - now
Self-Employed (schuam e.U.) (Graz, Austria)
Embedded Systems Engineer
- Concept and architecture development for firmware projects
- Firmware-/Microcontroller Programming
- Softwaredevelopment
- Softwaretests

01/2022 - 03/2023
07/2020 - 06/2021
10/2017 - 02/2020
Spath Micro Electronic Design GmbH (MEDS) (Graz, Austria)
Embedded Systems Engineer
- Concept and architecture development for firmware projects
- Firmware-/Microcontroller Programming
- Softwaretests
- Circuit Development

07/2016 - 06/2017
12/2014 - 06/2015
Seabear GmbH/Johnson Outdoors (Graz, Austria)
Embedded Systems Engineer
- PCB Design
- Firmware-/Microcontroller Programming
- galvanic and optical O_2-Sensors, optical CO_2- Sensors
- Building and Testing Prototypes

07/2015 - 06/2016
Bildungskarenz
Finishing studies at the Medical University of Graz. Part time working for Seabear GmbH.

10/2011 - 10/2014
Imego/Acreo (Graz, Austria)
Embedded Systems Engineer, Marie Curie ITN ESR
- PCB Design
- Firmware-/Microcontroller Programming
- galvanic and optical O_2-Sensors, optical CO_2- Sensors
- Building and Testing Prototypes

01/2010 - 07/2010
Daimler AG (Berlin, Deutschland)
Intern

Professional Career (Scuba Diving)

06/2021 - 11/2021
Nautic Team Gozo (Gozo, Malta)
Scuba Diving Instructor/Guide

08/2011 - 09/2011
04/2011 - 05/2011
09/2010 - 11/2010
Ocean World (Fuerteventura, Spanien)
Scuba Diving Instructor/Guide

06/2011 - 07/2011
Dive and Fun (Fuerteventura, Spanien)
Scuba Diving Instructor/Guide

07/2009 - 10/2009
Atlantik Tauchen (Teneriffa, Spanien)
Scuba Diving Instructor/Guide

08/2007 - 09/2007
Tauchschule Poseidon (Menorca, Spanien)
Guide

Professional Career (other)

12/2010 - 05/2011	**Technical University of Berlin** (Berlin, Germany)
12/2006 - 07/2008	Student Assistant
09/2005 - 09/2006	**Heliocentris Energiesysteme GmbH** (Berlin, Germany) Working Student
06/2004 - 09/2004	**Semperlux AG** (Berlin, Germany) Intern
09/2003 - 06/2004	**Vitanas Senioren Centrum** (Berlin, Germany) Social Service

Universities

11/2012 - 06/2016	**Medical University of Graz** (Graz, Austria) Doctoral program in Medical Sciences • Doctoral Theses: "Assessment And Model Oriented Interpretation Of Cardiovascular And Respiratory Parameters In A Hyperbaric Environment With Respect To Decompression Sickness"
10/2004 - 03/2011	**Technical University of Berlin** (Berlin, Germany) Electrical Engineering • Diploma Thesis: "Regelung einer Asynchronmaschine unter Verwendung eines Beobachters zur Magnetfeldschätzung" • Major: Electrical Drives • Minors: Control Technology and Electronics
08/2008 - 05/2009	**University of Arizona** (Tucson, Arizona, USA) Research Scholar (Scholarship by the TU Berlin) • Work on a simulation of autonomous cars. • Development of a domain specific visual programming language [1]

Languages

German	Naive Speaker
English	Fluent

Hobbies

Scuba Diving	Certificates: • Scuba Diving Instructor * (CMAS/VDST) • Forschungs- und Ingenieurstaucher
Season Dependent	Biking (street and mountain bike), Skiing, Hiking

Driver Licenses

	Car and Motorcycle Sport boats

Publications

[1] A. Schuster and J. Sprinkle, "Synthesizing executable simulations from structural models of component-based systems," *Electronic Communications of the European Association of Software Science and Technology (EASST)*, vol. 21, pp. 10 pages, 2009.

[2] A. Schuster, O. Castagna, B. Schmid, T. Cibis, and A. Sieber, "Underwater monitoring system for body temperature and ECG recordings," *Underwater Technology: The International Journal of the Society for Underwater Technology*, vol. 34, no. 3, pp. 135–139, 2017, doi: doi:10.3723/ut.34.135

[3] A. Schuster, D. Bachmaier, and A. Sieber, "Data logger for underwater rugby: First results," *Caisson*, vol. 29, no. 3, pp. 9–13, 2014.

[4] A. Schuster *et al.*, "Function selection among popular dive computer models: A review and proposed improvements," *Underwater Technology: The International Journal of the Society for Underwater Technology*, vol. 32, no. 3, pp. 159–165, 2014, doi: doi:10.3723/ut.32.159

[5] P. Buzzacott *et al.*, "A new model of head-up display dive computer addressing safety-critical rate of ascent and returning gas pressure - a pilot trial," *International Journal of Computer Science in Sport*, vol. 13/2014, pp. 50–58, 2014.

[6] A. Schuster, O. Castagna, B. Schmid, P. Enoksson, and A. Sieber, "Wireless monitoring of divers in a wet chamber during long time exposure experiments." Vortrag auf dem Tricontinental Scientific Meeting on Diving and Hyperbaric Medicine 2013 auf La Reunion, 2013.

[7] A. Schuster, D. Madden, M. Ljubkovic, Z. Dujic, and A. Sieber, "Pilot study: Underwater oscillometric blood pressure monitoring with a H2O-inflated cuff." Vortrag auf dem Tricontinental Scientific Meeting on Diving and Hyperbaric Medicine 2013 auf La Reunion, 2013.

[8] A. Sieber *et al.*, "Compact recreational rebreather with innovative gas sensing concept and low work of breathing design," *Marine Technology Society Journal*, vol. 47, no. 6, pp. 27–41, 2013, doi: http://dx.doi.org/10.4031/MTSJ.47.6.5

[9] A. Sieber, A. Schuster, S. Reif, D. Madden, and P. Enoksson, "Head-up display system for closed circuit rebreathers with antimagnetic wireless data transmission," *Marine Technology Society Journal*, vol. 47, no. 6, pp. 42–51, 2013, doi: http://dx.doi.org/10.4031/MTSJ.47.6.6

[10] A. Schuster, M. Ljubkovic, Z. Dujic, and A. Sieber, "Novel oscillometric methodology for underwater blood pressure monitoring." Vortrag auf dem Annual Scientific Meeting 2012 der European Underwater and Baromedical Society in Belgrad, 2012.

[11] A. Sieber, A. Schuster, S. Reif, and P. Enoksson, "Redundant PO2 and PCO2 and gas monitoring system for rebreathers comprising two galvanic PO2 sensors, one optical PO2 sensor and one dual wavelength PCO2 sensor." Vortrag auf dem Tricontinental Scientific Meeting on Diving and Hyperbaric Medicine 2013 auf La Reunion, 2012.

[12] A. Sieber and A. Schuster, "Tauchcomputerforschung in österreich," *Wetnotes*, vol. 10, pp. 32–35, 2012.

[13] O. Castagna *et al.*, "Physiological effects of long-duration diving (10H) in professional divers." Poster auf dem Tricontinental Scientific Meeting on Diving and Hyperbaric Medicine 2013 auf La Reunion, 2012.

July 2, 2025