

BERNHARD BUCHHOLZ

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Born on 26. April 1985
in Ellwangen (Jagst), Germany

EMPLOYMENT

- 03/2018 – Present
- Project Manager Strategy Consulting, Siemens Management Consulting (SMC)**
Siemens AG, SMC recently renamed to Siemens Advanta Consulting
- Fast-lane career progression – 2.2 years from Consultant via Senior Consultant to Project Manager
 - Led project teams of consultants and clients to develop business strategies and to ensure subsequent implementation for Siemens and other companies
 - Selected projects:
 - Restructuring in Germany: *Large factory network consolidation of ~5000 FTE*
 - Turnaround at Energy player: *Strategic turnaround to compensate roughly 300' loss at 2" topline incl. measure development and tracking setup*
 - Digital transformation at major O&G player: *Identification of business levers and digital business case evaluation for digital twin extensions*
 - Portfolio extension at Energy player: *Market assessment, use case vs. technology mapping, competitive landscape incl. organizational setup*
 - Startup ramp-up: *Strategy incl. portfolio definition & minimal setup for system integrator & consulting unit in decarbonization environment*
 - Productification of IoT offering: *Offering definition, market assessment, operating model, monetarization logic, competitor landscape and G2M*
 - IoT strategy for digital grid provider: *Use case identification & piloting, M&A screening*
- 01/2016 – 01/2017
- Visiting Research Associate, Princeton University (USA)**
Department of Civil and Environmental Engineering (Prof. Mark A. Zondlo)
Major tasks:
- Consulted on metrological linking and optimization of field-suitable instruments for gas analytical investigations related to fracking and conventional gas well pad monitoring
 - Responsible for airborne hygrometer HAI on German research aircraft HALO in international measurement campaign operated from Sweden (Kiruna)
 - Evaluated scientific data and published two peer-reviewed papers as first author
- 10/2010 – 02/2018
- Research Associate, Physikalisch-Technische Bundesanstalt (PTB)**
Department 3.2 "Analytics and Thermodynamic State Behavior of Gases" (Prof. Volker Ebert)
PTB: German National Metrology Institute
Major tasks:
- Responsible for several third-party funded projects (DFG & EUFAR, total sum approx. 1.2 Mio. € funding) targeting the new development, primary validation and field deployment of a novel family of airborne laser hygrometers
 - Supervised the airborne certification process of four self-developed instruments
 - Prepared and participated in eight airborne campaigns in Germany and abroad
 - Published scientific results (as first author: eight peer-reviewed papers, two patent applications, 19 talks at national and international conferences, 18 other scientific publications)
 - Negotiated international research projects for PTB
 - Initiated and consulted on several scientific and internal efficiency improvement projects
- 11/2002 – Present
- Consultant, Consulting and Services**
- Provided basic installations and hosting of websites as well as server based (web-) services
 - Managed commercial rental properties; Led contract negotiations as well as coordinated refurbishments
 - Consulted small businesses to optimize their operational processes
e.g. Toms-Driving-School.de (2004 – Present, focus: expansion, analysis of profitability)
- 07/2002 – Present
- Founder and Owner, Enterprise TCB-Versand Buchholz**
- Specialized retailer for mainly radio controlled model building (partly sold 09/2010)
 - Developed, adapted, and consulted with customers on seeking special electronic solutions

E D U C A T I O N

10/2010 – 07/2014	Technische Universität Darmstadt , PhD study in Department of Mechanical Engineering Thesis: Development, primary validation and field deployment of novel calibration-free laser hygrometer for research aircraft Degree: Doctor rerum naturalium (equal to Ph.D. in Physics) (Final grade: 1.0 “summa cum laude” – with highest honor)
03/2010 – 08/2013	FernUniversität in Hagen , Bachelor degree course, Business Informatics Thesis: Tax compliance – a micro-economic analysis Degree: Bachelor of Science (Final grade: 1.5 – excellent, ranking position: ≤ 4.8%)
10/2007 – 02/2013	FernUniversität in Hagen , Bachelor degree course, Business Administration and Economics Thesis: Streaming media regarding the German copyright Degree: Bachelor of Science (Final grade: 1.5 – excellent, ranking position: ≤ 2%)
03/2007 – 09/2010	Universität Heidelberg , Diplom studies, Physics Thesis: New hard- and software developments for autonomous, compact and lightweight field diode laser hygrometer Degree: Diplom (comparable to a Master of Science degree) (Final grade: 1.0 “mit Auszeichnung” – with highest honor)
03/2005 – 03/2007	Universität Heidelberg , Diplom study, Physics Certificate: Vordiplom (comp. to a Bachelor of Science degree, final grade: 1.4 – excellent)
07/2004 – 02/2005	Basic Military Service (mandatory), Gebirgsanitätsregiment 42 "Allgäu"
09/1995 – 07/2004	Peutinger-Gymnasium Ellwangen , High school studies Certificate: Abitur (German high school certificate, final grade: 1.3 – excellent)

P R I Z E S A N D A W A R D S

04/2015	Publication CITAC Best Paper Award for 2014 Buchholz et al., “Absolute validation of a diode laser hygrometer via inter-comparison with the German national primary water vapor standard”, Applied Physics B (2014)
12/2014	PhD Thesis Award of the Helmholtz-Fond 2014
02/2005	Military service “Förmliche Anerkennung wegen vorbildlicher Pflichterfüllung” (German military award)
07/2004	Abitur Ferry-Porsche prize of “Dr. Ing. h.c. F. Porsche AG” Book and membership prize of the “Deutschen Physikalischen Gesellschaft e.V.” Economics prize of the “Freunde Ellwanger Gymnasien e.V.”

A D D I T I O N A L S K I L L S A N D I N T E R E S T S

Languages	German: native speaker, English: proficient in writing and speaking
Stays Abroad	Brazil (3 months), USA (25 months in total)
Computer literacy	LabVIEW (National Instruments), EAGLE (CadSoft), Python, Ubuntu (Linux) Expert knowledge, longer than five years professional experience MS-Word, MS-PowerPoint, MS-Excel, Origin, SQL, C (AVR) Very good knowledge MATLAB, PHP, HTML, JavaScript, Assembler Basic knowledge

Practical Skills	Longtime interests and high curiosity for technical processes and their optimization Very good knowledge and practical experiences with the manufacturing and improving of electronic and mechanical apparatuses up to rebuilt (gutting) of buildings
Non-Profit Engagements	Integrative linking of social groups e.g.: 2016: Co-led and established the PostDoc Council at Princeton University as a recognized entity with budget. 2011 – 2015: Established social group “Newcomers to Braunschweig” with ~3000 members
Hobbies	Traveling, running, hiking, sailing, flight sport, beach volleyball

P A T E N T S A N D P U B L I C A T I O N S

Patents	<p>“Detektoranordnung und Spektroskop” B. Buchholz and V. Ebert German Patent and Trade Mark Office: DE 10 2014 200 627 A1 2015.07.16 Describes an optical fiber-to-detector coupling setup for quantification of parasitic absorption in fiber laser systems.</p> <p>“Durchführung einer Leitung” B. Buchholz and V. Ebert German Patent and Trade Mark Office: DE 10 2014 200 629 A1 2015.07.16 Describes a compact, adjustable, strain-relieved, vacuum feedthrough for highly sensitive materials such as optical fibers.</p>
Selected peer-reviewed journal publications as first author	<p>SEALDH-II – a calibration-free transfer standard for airborne water vapor measurements: Pressure dependent absolute validation from 5–1200 ppmv at a metrological humidity generator Atmospheric Measurement Techniques Discussions, (2017), DOI: 10.5194/amt-2016-413</p> <p>HAI – a new airborne, absolute, twin dual-channel, multi-phase TDLAS-hygrometer: background, design, setup, and first flight data Atmospheric Measurement Techniques, 7, 10, 35–57, (2016), DOI: 10.5194/amt-10-35-2017</p> <p>Optical pressure sensing on fast aircrafts using TDLAS Atmospheric Measurement Techniques, 7, 3653-3666, (2014), DOI: 10.5194/amt-7-3653-2014</p>

Munich, 23.12.2020

