

# CHRISTIAN S. PILZ

Neuenhofer Weg 11, 52074 Aachen/ Germany,  
born at the Lake of Konstanz/ Germany , 5<sup>th</sup> may 1976,  
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**Experienced principal lead engineer with extensive and sophisticated knowledge in  
computer vision, machine learning and human state computing**

## KEY ACCOMPLISHMENTS

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*Executive thought leadership and high-level strategic research and engineering*

- Technology restructuring of a driver state monitoring system with facial alignment, pose and gaze prediction. OEM&Tier1 deployment with embedded serial production. Marketvolume of 15 Mio. Units.
- Technology restructuring of a German voice biometric company which yielded to a fusion with a CRIM/ Montreal spin-off with a transfervolume of 25 Mio. EUR, 11 patents, 2 product awards.
- Video-based Vigilance Detection: Initiator and consortium lead of a research project funded by the German Federal Ministry of Research (BMBF) with 1.5 Mio. EUR.

## EXPERIENCE

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*CanControl GmbH (RWTH spin-off), Aachen/ Germany. Head of research and development (CSO). 2010-present*

- Responsible for strategic research and technical lead management, team leadership for clients in automotive and aerospace sector
- Research and algorithmic development of camera based behavioral and physiological feature extraction from human face
- Disciplinary and technical lead management of public founded research projects

*BSI LLC. (Gregg Steinhauser Investment), Greenwich/ CT (USA). Interim position chief scientific officer (CSO). 2009-2010*

- Technical restructuring of a mobile multimodal biometric identification system
- IP-management

*VoiceTrust AG (Marcel Boekboorn – Rampastos Investments), Munich. Head of research and development. 2006-2010*

- Technology restructuring of voice recognition algorithm
- Common criteria certification of the voice biometric system
- IP-management

## PATENTS & PUBLICATIONS

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### *Patents*

- US 2010/0131279 Method and Arrangement For Controlling User Access, 2010
- EP 2192576 Voice authentication with means to prevent playback attacks, 2010
- WO2008/110441 Digital method and arrangement for authenticating a person, 2009
- EP2137724 Digital method and arrangement for authenticating a person, 2009
- WO 2008/095827 Phonemic Suitability, 2007
- DE 102007005704 Phonemic Suitability, 2007
- US 2007/027663 Mean Error Vector Quantization, 2007
- US 2007/0233483 Speaker Authentication in Digital Communication Networks, 2007
- DE 102007011831 Speaker Authentication in Digital Communication Networks, 2007
- EP 1860647 Robust Speaker Recognition; Mean Error Vector Quantization, 2007
- EP 1843325 Speaker Authentication in Digital Communication Networks, 2007

### *Publications*

- The Face of Vigilance. In submission 2018/19
- On Invariance in Facial Expression Recognition, Submitted to BMVC, Newcastle 2018
- Local Group Invariance for Heart Rate Estimation from Face Videos in the Wild. The IEEE Conference on Computer Vision and Pattern Recognition Workshops (CVPRW), Salt Lake City 2018
- On the Diffusion Process for Heart Rate Estimation from Face Videos under Realistic Conditions. Pattern Recognition: 39th German Conference, GCPR 2017, Basel, Switzerland. Proceedings (Lecture Notes in Computer Science), Springer 2017
- Heart rate from face videos under realistic conditions for advanced driver monitoring. Current Directions in Biomedical Engineering, De Gruyter, Berlin 2017
- Videobasierte Herzratenschätzung aus Gesichtsregionen unter realistischen Bedingungen. DGLRM Congress, Köln 2017

- Facial Features in Predicting Vigilance. DLRM Congress, Bückeburg 2016
- Video-Based Vigilance Detection, BMBF Congress, Hannover 2016
- iPhone- Gestenerkennung, Touchscreen und der Beschleunigungssensor. IHK - Competence Center Day, Hochschule München 2008
- Kullback-Leibler Divergence for Replay Attack Recognition in Text-Dependent Speaker Verification. Technical Report, VoiceTrust AG 2008
- SUVI, Sprachdatenbank für die Text-Unabhängige Sprechererkennung, Fachtagung für elektronische Sprachsignalverarbeitung, Cottbus 2007
- Phonemic Suitability in Text-Dependent Speaker Recognition, Technical Report, VoiceTrust AG 2007

#### *Awards*

- Wireless Broadband Innovation Awards 2009 Finalist: iPhone VOICESAFE, 2009
- Voice Days Plus, Best Innovation Award, VOICESAFE follow-up product mobile-server, 2009

#### **EDUCATION**

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RWTH Aachen  
Ph.D. studies in: Computer Vision, Pattern Recognition & Human State Computing

- Dissertation: Sensing Physiological Measurements from Human Face

Hochschule München München  
M.Sc. (with honours) in: Computer Sciences, Biometrics, Pattern Recognition, HMI

- Thesis: Generative & Discriminative Text-Independent Speaker Verification Incorporating Session & Channel Compensation

TH Mittelhessen Friedberg-Giessen  
Dipl. Ing. in: Media & Computer Sciences, Biometrics, Speech- & Signal-Processing

- Thesis: Speech Codec Identification for Cross-Channel Effects in Speaker Recognition

#### **SKILLS**

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SCRUM, Common Criteria (CC), MISRA, C/C++

#### **LANGUAGES**

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German (mother language), English (fluent), French (basic understanding)

#### **REFERENCES**

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Volkswagen, Audi, BMW, Ford, Toyota, Renault, Peugeot, DS Automobiles (PSA).  
Continental, Bosch, Valeo, Faurecia.  
Diehl Aerospace, NLR - Netherlands Aerospace, German Aerospace Society.  
CES Las Vegas 2011/2012/ 2017/ 2018.

**PRIVATE INTERESTS**

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Natur&Surfing, Classic Mustangs& V8 engines architecture