

# Pejman Mowlae

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## Personal Data

Full name: Pejman Mowlae  
Gender: Male  
Date and place of birth: March 25th, 1983, Anzali, Iran  
Citizenship: Iranian  
Current residence: Tove Maës Vej 5, 2500, Valby, Denmark  
Date of writing the CV: 31.07.2019

## Education

- Dr. Habil, Privatdozent, TU Graz, Austria.** 2012-2017
- **Habilitation**, Venia Docendi for Speech Signal Processing, TU Graz
  - **Thesis title:** *Phase-Aware Signal Processing and Speech Communication*
- PhD in Signal Processing, Aalborg University, Aalborg, Denmark.** 2007-2010
- **Funding programme:** Marie Curie EST-SIGNAL Fellowship
  - **Supervisors:** Prof. Søren Holdt Jensen, Prof. Mads Græsbøll Christensen
  - **Thesis title:** *New Strategies for Single-channel Speech Separation*
- M.Sc. in Communication Systems, Iran University of Science and Technology, Tehran, Iran.** 2004-2006
- **Funding programme:** Iran Telecommunication Research Centre (ITRC)
  - **Thesis:** *Microphone Arrays Noise reduction and DOA estimation*
  - **Supervisor:** Prof. Mohammad Hossein Kahaei
- B.Sc. in Electrical Engineering, Guilan University, Rasht, Iran.** 2000-2004
- **Thesis:** *Adaptive Filters and their application in echo cancellation*
  - **Supervisor:** Dr. Bahman Zanj

## Work Experience

- Senior research engineer and Adjunct Professor, Widex Sivantos Audiology (WSA), Lyng** 2019-now  
Denmark.
- DSP specialist and Adjunct Professor, Widex A/S, Lyng** 2017-2019  
Denmark.
- Adjunct Professor, TU Graz, Austria.** 2017-now
- Assistant Professor, TU Graz, Austria.** 2012-2017
- Marie Curie Post-doc fellow, Ruhr Universität Bochum, Germany.** 2011-2012  
for Digital Signal Processing in Audiology (AUDIS)
- Research and development for signal processing algorithms, Telecommunication and Electronic Research Center Ltd., Tehran, Iran.** 2006-2007
- Research and development for signal processing algorithms, Digital Video Broadcasting, Tehran, Iran.** 2005-2006

## Research Interests

- **Speech and audio processing:** multi-channel/single-channel signal enhancement (noise reduction, source separation, source localization, compression), speech coding, filterbank design, audio classification
- **Speech quality estimation:** predicting the performance of audio processing device in terms of sound quality or speech intelligibility for normal hearing and hearing impaired listeners or automatic speech recognition for human-machine speech communication systems
- **Human inspired signal processing for acoustics:** auditory-based speech signal processing complementing or mimicking the human perception system
- **Digital signal processing in audiology:** Acoustic signal processing for specific application domains, e.g., hearing assistive devices
- **Statistical signal processing:** detection and estimation theory parameters in noise
- **Machine learning:** applications in human-machine interaction, speech recognition and audio classification.
- **Forensic:** speaker recognition, anti-spoofing and audio watermarking

## Computer Skills

**Languages:** Visual Studio C/C++, Matlab, Simulink, Python, R, LabVIEW

**Frameworks:** Machine learning and deep learning toolboxes and libraries

**Others:** HTML, agile project management, visual basic (Intermediate), LaTeX, Microsoft Office

**Operating System:** Linux, Windows

## Scientific and Societal Impact of Research

Summary: 1 book, 5 patents, 20 journals (16 published/4 under revision) and 50 international conference papers. For a full list of publications please refer to [Google-scholar](#) (ORCID: 0000-0003-0136-8002).

### *Citations*

1174 citations and h-index = 20 (last accessed from Google-scholar on 31.07.2019).

### *Open-Source Projects*

Phase-aware processing Toolbox for the book published at John Wiley and Sons ([PhaseLab](#))

## Linguistic Skills

- Persian (maternal), English (fluent), German (Full proficiency, B2 als gute Mittelstufe oder SelbständigeSprachverwendung), Danish (working proficiency)

## Funding, Group Leadership and Supervision

- 12.2014-06.2015: Initial Funding 10,000 € for three research assistants, TU Graz Austria (status: completed).
- 01.07.2015-31.07.2019: Principal Investigator for [FWF standalone research project](#) funded by Austrian research fund (FWF), 338,236 € (status: completed).

## Honors

- Award for NEXT WAVE ideation campaign at Widex A/S, 2019
- Award for Patents, Widex A/S, 2018
- Innovation Award at TU Graz 2015
- EU Marie-Curie postdoctoral fellowship at Ruhr Universität Bochum, Germany (2011-2012).
- EU Marie-Curie doctoral fellowship at Aalborg University, Denmark (2009-2010)
- Third Place National Award in Master Theses in Electrical Engineering, 2006.
- Young research award for M.Sc. Program at Iran University of Science and Tech., Iran 2004-2006.
- Ranked 1st distinction in M.Sc. Program in Communication Engineering at Iran University Tech., 2004-2006.
- Ranked 1st distinction in B.Sc. Program in Electrical Engineering Guilan University, Iran 2000-2004.

## Merits in Teaching and Pedagogical Competence

- Digital Signal Processing (BSc course/four semesters)
- Speech Signal Processing (Graduate course/five semesters)
- Adaptive Filter Theory (Graduate course/four semesters)
- Digital Signal Processing Lab (BSc course/three semesters)
- Speech Processing Lab (Graduate course/five semesters)
- Advanced seminars in signal processing (Graduate course/two semesters)
- Master Seminar in sound engineering (Graduate course/five semesters)
- Signal Processing seminar (Graduate course/one semester)
- Image Signal Processing (Graduate course/one semester)
- Circuit Theory I and II (BSc course/three semesters)

## Other Academic Merits

### *Research Visits and Invited Talks*

- Invited talk at Acoustic Research Institute (ARI), Vienna, Austria, November 2016 (host: Peter Balazs).
- Invited talk at MEDEL workshop, MED-EL Innsbruck, Austria, October 2016 (host: Dr. Peter Nopp).
- Invited talk at Signal Processing Research Department of Starkey Hearing Technologies, Berkeley United States, September 2016 (host Prof. Tao Zhang).
- Invited talk at Interactive Systems Design Lab at University of Washington, United States, September 2016 (host: Prof. Les Atlas).
- Invited talk at Institute of Communication Systems and Data Processing RWTH Aachen University, Germany, February 2015 (host: Prof. Peter Vary).
- Invited talk at Fraunhofer Institute, September 2015 (host: Prof. Frederik Nagel).
- Invited talk at Ruhr Universitet, Bochum, September 2015 (host: Prof. Rainer Martin)
- Invited talk at Institut für Nachrichtentechnik in Technische Universität Braunschweig, Germany, February 2014 (host: Prof. Tim Fingscheidt).
- Invited talk at University of Eastern Finland, Joensuu, Finland, November 2009, (host: Prof. Pasi Fränti).

### *Dissemination Qualifications*

- Special Issue editorial for *Phase-Aware Signal Processing in Speech Communication* in Elsevier Speech Communication Journal.
- Special session organizer for *Phase Importance in Speech Processing Applications*, special at 15th Annual Conference of the International Speech Communication Association (INTERSPEECH), Singapore, 2014.
- Tutorial session organizer for *Phase Estimation From Theory to Practice*, at 16th Annual Conference of the International Speech Communication Association (INTERSPEECH), Dresden, Germany, 2015.
- Show and tell organizing committee for INTERSPEECH 2019, Graz, Austria.
- Organizing committee for AUDIS workshop 2012, Aachen, Germany.
- Organizing committee for EUSIPCO 2010, Aalborg, Denmark.

### *Participation in organizations*

- IEEE Senior Member (2013-now), IEEE Member (2012-2013), IEEE Student Member (2007-2012)
- Member of International Speech Communication Association (ISCA), Since 2011

### *Participation on Committees or Boards*

- Recognized reviewer for Digital Signal Processing and Speech Communication Journals in Elsevier 2019
- Reviewer for IEEE Trans. Audio, Speech and Language Processing, IEEE Signal Processing Letters, Speech Communication, Signal Processing, Hindawi EURASIP Journal on Advances in Signal Processing.
- Reviewer for ICASSP, INTERSPEECH, EUSIPCO, ITG.

## **Master and PhD Supervision**

### **Master [M]/PhD [D]/Postdoc [P]**

- [M1] Christian Nachbar, Single-channel Speech Enhancement Using Sinusoidal Model, Graz University of Technology, June 2014.
- [M2] Josef Kulmer, "Single-Channel Speech Enhancement in Complex Spectral Domain, Graz University of Technology, Sept. 2014.
- [M3] Anna Maly, "Speaker-adaptive speech enhancement, Masters thesis, Graz University of Technology, Nov. 2014.
- [M4] Mario Watanabe, "Harmonic Model Based Post-Filter in Speech Enhancement", Graz University of Technology, Jan. 2015.
- [M5] Andreas Gaich, "Phase-Aware Speech Quality Estimation", Masters thesis, Graz University of Technology, Sept. 2015.
- [M6] Florian Mayer, "Phase-Aware Single-Channel Source Separation", Graz University of Technology, Sept. 2015.
- [M7] Johannes Stahl, "Advances in Phase-Aware Speech Enhancement", Graz University of Technology, Nov. 2015.
- [M8] Martin Blass, "Double Spectrum for Speech Enhancement", Masters thesis, Graz University of Technology, June 2016, supervised by: Dr. Pejman Mowlae (co-supervisor: Prof. Bastiaan Kleijn).
- [M9] Johannes Fahringer, Phase-Aware Processing for Automatic Speech Recognition", Graz University of Technology, June 2016 (co-supervisor: Prof. Franz Pernkopf).
- [M10] Michael Pirolt, Time-Frequency Phase Processing for Speech Enhancement", Graz University of Technology, Jan. 2017.
- [M11] Christian Stetco, "Information theory for speech signal processing, Graz University of Technology.
- [M12] Andrea Zabronska, "Binaural phase-aware noise reduction, Graz University of Technology, Jan. 2019.
- [M13] Jiwon Seo, "Phase-aware processing for Multi-channel speech enhancement, Graz University of Technology, 2018.
- [M14] Daniel Scheran, "Modulation-based speech processing, Graz University of Technology (completed August 2018).
- [D1] Johannes Stahl, Complex-Valued Statistical Signal Processing for Speech Processing", PhD thesis, Graz University of Technology, February, 2019.
- [D2] Lukas Pfeifenberger Multi-channel noise reduction, beamforming and complex deep neural network supervisor Prof. Franz Pernkopf (ongoing).
- [D3] Robert Peharz, Foundations of Sum-Product Networks for Probabilistic Modeling, supervised by Prof. Franz Pernkopf (completed September 2016).
- [P1] Johannes Stahl, Postdoctoral fellowship for FWF project (ongoing)
- [P2] Juan Andrés Morales Cordovilla, Distant speech recognition in reverberant noisy conditions employing a microphone array", Postdoctoral fellowship for DIRHA project, Graz University of Technology, supervised by: Prof. Gernot Kubin (completed September 2016).
- [P3] Sean Wood, Postdoctoral fellowship for FWF project (Nov. 2017-now)