

Thomas Hueber, Ph.D

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Tenured Researcher at French National Center for Scientific Research (CNRS) Multimodal technologies for voice and speech rehabilitation

Personal details: French, born in 1982

Domains of expertise

- Speech processing (recognition, synthesis, morphing/conversion, articulatory-acoustic mapping)
- Speech technologies based on human *biosignals* (e.g. articulatory movements, neural/brain activity)
- Statistical machine learning

Current research projects

- Silent speech interface driven by ultrasound images of the vocal tract (project Ultraspeech2)
- Visual biofeedback for speech therapy (project Vizart3D)
- Brain-computer interface for speech rehabilitation (in collaboration with Clineat, INSERM)
- Incremental speech synthesis (project SpeakRightNow)

Work Experience

CNRS tenured researcher - GIPSA-lab (Grenoble, France) - since oct 2010:

- Co-head of the CRISSP research team (Cognitive Robotics, Interactive Systems & Speech Processing)
- Principal investigator of 3 research projects (Ultraspeech2, Vizart3D, SpeakRightNow)
- Supervision of PhD candidates (3) & Master students (2)
- Lecturer at Phelma and ENSIMAG on real-time audio processing and speech technologies

Post-doctoral researcher at GIPSA-lab (Grenoble, France, UMR 5216, jan 2010 – oct 2010)

ANR project ARTIS: acoustic-articulatory inversion and talking head animation for speech therapy

PhD candidate at ESPCI ParisTech (SIGMA lab) & Telecom ParisTech (LTCI) (oct 2006 – dec 2009)

Thesis entitled: "Speech synthesis from ultrasound and video images of the vocal tract, toward a silent speech interface" - Advisors: Pr Denby (ESPCI/UPMC) & Dr Chollet (Telecom Paris/CNRS)

Teaching assistant ("moniteur") in Electronics at Université Pierre et Marie Curie, Paris (oct 2006 – dec 2009)

Software engineer (internship) at IRCAM Paris (sept 2004 – sept 2005)

Concatenative synthesis for music and speech

Education

- PhD in Computer Science - Université Pierre et Marie Curie (Paris, France) – (2006-2009)
- Master of Science (Postgraduate degree) in Image Processing – INSA Lyon, ECL (2005-2006)
- Engineering degree in Electronics – ESCPE Lyon - (2002-2006)
- "Classes Préparatoires Math Sup' Math Spé'" – Nice, France - (2000-2002)

Selected publications in international peer-reviewed journal

Hueber, T., Bailly, G. (2016), Statistical Conversion of Silent Articulation into Audible Speech using Full-Covariance HMM, *Computer Speech & Language*, vol. 36, pp. 274-293.

Hueber, T., Girin, L., Alameda-Pineda, X., Bailly, G. (2015), "Speaker-Adaptive Acoustic-Articulatory Inversion using Cascaded Gaussian Mixture Regression", in *Audio, Speech, and Language Processing, IEEE/ACM Transactions on*, vol. 23, no. 12, pp. 2246-2259.

Hueber, T., Benaroya, E.L., Chollet, G., Denby, B., Dreyfus, G., Stone, M., (2010) "Development of a Silent Speech Interface Driven by Ultrasound and Optical Images of the Tongue and Lips", *Speech Communication*, 52(4), pp. 288-300.

Patent

Hueber, T., Dubois, R., Roussel, P., Denby, B., and Dreyfus, G., "Device for reconstructing speech by ultrasonically probing the vocal apparatus", Patent No. WO/2011/032688, published on 24/03/2011.

Awards

- Best paper award - Eurasip-ISCA (2015)
- 6th Christian Benoit Award (ISCA, ACB, AVISA) (2011)
- Best Student Paper Award in Speech Communication – Meeting of the Acoustical Society of America (2008)