Tamás Gábor CSAPÓ

Curriculum Vitae

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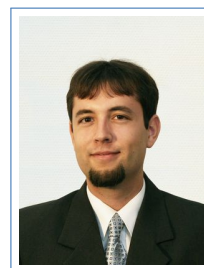✆ +36 (30) 495 0215
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EDUCATION

Sep 2008–
Oct 2014
PhD in Informatics, *Budapest University of Technology and Economics (BME), Hungary*, Thesis: „Increasing the naturalness of synthesized speech in hidden Markov-model based text-to-speech synthesis", Fully funded by state scholarship.
Summa cum laude, 100%

Sep 2003–
Jul 2008
MSc Engineer in Technical Informatics, *Budapest University of Technology and Economics, Hungary*, Major: Next Generation Networks, Thesis: „Implementation of prosodic variability in Text-To-Speech systems".
Cumulated Grade Average: 4.29/5.00

INTERNATIONAL EDUCATION

Jan 2014–
Jul 2014
Fulbright scholarship, *Department of Speech and Hearing Sciences*, Indiana University, Bloomington, IN, USA, Research topic: „Investigating tongue movement during speech with ultrasound".

Aug 2009
ECSE Summer School, *University of Joensuu*, Joensuu, Finland, Course: „Speaker and Language Recognition".

Mar 2009
ATHENS programme, *Telecom ParisTech*, Paris, France, Course: „Scientific Research Methods".

CURRENT POSITION

Nov
2014–present
Post-doc researcher, *Department of Telecommunications and Media Informatics*, Budapest University of Technology and Economics, Hungary, Speech Technology and Smart Interactions Laboratory.

PREVIOUS POSITIONS

Sep 2011–
Oct 2014
PhD candidate, *Department of Telecommunications and Media Informatics*, Budapest University of Technology and Economics, Hungary, Speech Technology and Smart Interactions Laboratory.

Jan 2014–
Jul 2014
Visiting student researcher, *Department of Speech and Hearing Sciences*, Indiana University, Bloomington, IN, USA, Speech Production Laboratory.

Sep 2008–
Aug 2011
PhD student, *Department of Telecommunications and Media Informatics*, Budapest University of Technology and Economics, Hungary, Speech Technology Laboratory.

LANGUAGE LITERACY

Hungarian	**Native**.
English	**Non-native fluent**, *EU C1 level exam, 2008, BME State Accredited Language Exam and TOEFL iBT exam, 2012: 102 points (out of 120)*.
German	**Intermediate**, *EU C1 level exam, 2009, BME State Accredited Language Exam*.
French	**Beginner**.

AWARDS, GRANTS AND SCHOLARSHIPS

Mar 2015	**Award: 1st prize**, *Huszty Dénes Foundation*, PhD Thesis Contest.
Jan 2014– Jul 2014	**Fulbright scholarship**, *Indiana University, Bloomington, IN, Unites States of America*.
Jan 2014	**Grant: Hungarian Academy of Engineering**, *travel grant to Bloomington*.
Oct 2013	**Award: 3rd prize**, *BMe research grant*, dissemination contest.
Jul 2013	**Grant: Campus Hungary**, *travel grant to 8th Speech Synthesis Workshop*.
May 2013	**Award: 1st prize**, *Microsoft No Time to W8 contest*, for the „Weather for All" application (together with colleagues from BME-TMIT).
Apr 2010	**Grant: Acoustical Society of America**, *International Student Grant*.
Sep 2009	**Grant: Bizáky Puky Péter Foundation**, *travel grant to Interspeech 2009*.
May 2008	**Award: 3rd prize**, *Audio Engineering Society (Hungary)*, MSc Thesis Contest.
Nov 2007	**Award: 2nd prize**, *Scientific Students' Associations Annual Conference of BME*.
Nov 2007	**Award: 1st prize**, *Scientific Students' Assoc. Ann. Conf. of BME (in German)*.
Sep 2007– Aug 2008	**Scholarship of the Hungarian Republic**, *awarded by the Ministry of Education of the Hungarian Republic*.
Sep 2007– Jan 2008	**Scholarship of the Faculty**, *Faculty of Electrical Engineering and Informatics, BME*.
Sep 2007– Jan 2008	**Scholarship of the University**, *Budapest University of Technology and Economics*.
Aug 2007	**Grant: International Speech Communication Association**, *travel grant to Interspeech 2007*.
Apr 2007	**Award: 1st prize**, *National Conference of Scientific Students' Associations*.
Nov 2006	**Award: 1st prize**, *Scientific Students' Association Annual Conference of BME*.

SUPERVISION OF GRADUATE AND UNDERGRADUATE STUDENTS

Jun–Jul 2015	**Co-supervision of 1 BSc student (professional internship)**, *Dept. of Telecomm. and Media Informatics, BME*, Topic: „Message handler for Android".
Aug–Nov 2014	**Supervision of 1 BSc student (Scientific Students' Associations Annual Conference of BME)**, *Dept. of Telecomm. and Media Informatics, BME*, Topic: „Automatic tongue contour tracking for ultrasound".

Jan–May 2014	**Co-supervision of 2 BSc students (Project Laboratory)**, *Dept. of Speech and Hearing Sciences, IU, USA*, Topic: „Tracking tongue movement with ultrasound", „Investigation of a tongue-internal coordinate system for 2D ultrasound".
Sep 2011– May 2015	**Supervision and co-supervision of 5 BSc students (Project laboratory and thesis writing)**, *Dept. of Telecomm. and Media Informatics, BME*, Topics: „Using a continous model for pitch tracking", „Analysis of breathy speech", „Speech-driven remote control for Samsung SmartTV", „Design of speech-based emotional acoustic icons", „Synthesis of spontaneous speech".
Jan 2010– Jun 2011	**Co-supervision of 2 MSc students (Project laboratory)**, *Dept. of Telecomm. and Media Informatics, BME*, Topics: „Audiobooks for text-to-speech synthesis", „Analysis of spontaneous speech".

▬▬ TEACHING ACTIVITIES

Feb 2015– annually	**Software laboratory – databases**, *(in Hungarian)*, taught lectures and rated mid-term work.
Sep 2014– annually	**Infocommunication**, *(in English)*, developed course material for English, taught lectures.
Sep 2010– annually	**Human-Computer Interaction**, *(in English and Hungarian)*, developed course material, assisted and taught lectures, rated mid-term project work.
Jan 2010– annually	**Project Laboratory and thesis writing**, *(in Hungarian)*, supervised BSc and MSc students.
Sep 2008– May 2015	**Measurement Laboratory**, *(in English and Hungarian)*, compiled and supervised a new lab on VoiceXML dialog planning and taught Speech Coding Lab.

▬▬ RESEARCH AREAS

HMM-TTS, *Hidden Markov-model based Text-To-Speech synthesis*, (excitation models, vocoding), [J1, J2, J3, C1, C8, P3].

Glottalization, *Analysis, transformation and synthesis of glottalization*, (creaky voice), [J1, C3, C7, P3].

Articulation, *Investigation of articulation during speech production*, (using 2D ultrasound), [C2, C4, P1, P2].

SGR, *Subglottal resonances*, (lower airway resonances), [J3, J4, C10, C13].

Prosody, *Intonation modeling in speech synthesis*, (for prosodic variability), [J3, J5, C5, C12, C14, P4].

HCI, *Human-Computer Interaction*, (speech technologies), [C6, C9, C11, P5].

▬▬ ACADEMIC AND INDUSTRIAL PARTNERS, INTERNATIO- NAL COOPERATION

Department of Speech and Hearing Sciences, Indiana University, Bloomington, IN, USA [C2, P1, P2, M4]; Microsoft Language Development Center, Lisbon, Portugal [C6]; Department of Electronics Telecommunications and Informatics, University of Aveiro, Aveiro, Portugal [C6]; Idiap Research Institute, Martigny, Switzerland [C1, C5]; Faculty of Electrical Engineering and Information

Technologies, Ss. Cyril and Methodius University of Skopje, Skopje, Macedonia [C5]; Faculty of Technical Sciences, University of Novi Sad, Novi Sad, Serbia [C5]; CNGL, School of Computer Science and Informatics, University College Dublin, Dublin, Ireland [C9]; Microsoft Hungary, Budapest, Hungary; Research Institute for Linguistics, Hungarian Academy of Sciences, Budapest, Hungary [J4, C10, C13]; Institute for Psychology, Hungarian Academy of Sciences, Budapest, Hungary [C13]; Department of Phonetics, ELTE, Budapest, Hungary [J4, C10, C13]; Institute of Psychology, University of Debrecen, Debrecen, Hungary [C4].

PROFESSIONAL SOCIAL ACTIVITY

2013–present	**Reviewer**, for IEEE Signal Processing Letters, Journal on Multimodal User Interfaces, International Journal of Speech Technology, Interspeech (2013), CogInfoCom (2013).
2016	**Volunteer**, for EUSIPCO 2016 (European Signal Processing Conference), SPECOM 2016 (18th International Conference on Speech and Computer).
2009–present	**Member**, of IEEE Signal Processing Society, International Speech Communication Association, Scientific Association for Infocommunications Hungary.

OUTREACH ACTIVITIES

Nov 2015	**Meet the Scientist**, *Tata Calvinistic High School*, Demonstrations for secondary school students.
Jun 2015	**Meet the Fulbrighter**, *BME*, Presentation about the experience in the USA.
Apr 2015	**Meet the Returned Hungarians**, *Fulbright Hungary, Budapest*, Presentation about the Fulbright experience.
Jun 2014	**REElfication**, *Bloomington, IN, USA*, Short introduction in the newsletter of the Russian and East European Institute of Indiana University.
Jan-Jul 2014	**Tour of the Lab**, *Indiana University, USA*, Demonstration of the new equipment of the Speech Production Laboratory to students and professors.
Jan-Jul 2014	**Researcher blog**, *Bloomington, IN, USA*, Posts for the public (about Fulbright experience in the USA), `http://csapobloomington.blogspot.hu/`.
2013–annually	**European Researchers' Night**, *Ericsson, Budapest*, Demos for children.
Oct 2013	**BM*e* Research Grant**, *Electronic dissemination contest*, to show research through the Internet, `http://doktori.bme.hu/bme_palyazat/2013/honlap/Csapo_Tamas_en.htm`.
May 2013	**Veres Pálné Secondary School**, *Budapest*, Demonstrations for secondary school students (Reverse day).
Nov 2012	**Czeglédi Péter Calvinistic Secondary School**, *Levice, Slovakia*, Demonstrations for secondary school students (Robot study group).
Oct 2012	**„Weather for All" Windows 8 application**, *Windows 8 Store*, Demonstration application for text-to-speech (in Hungarian: „Időjárás mindenkinek").
Feb-May 2012	**University Experience course**, *BME*, Help integrating freshman students.
Sep 2011	**European Researchers' Night**, *BME*, Demos of telecomm. applications.

2009–annually	**Specialization Exhibition**, *BME*, Demonstrations for undergraduate students.
Feb 2009	**Speaking smartphone for the blind**, *DunaTV*, Demonstration of a SmartPhone application in a national TV program.
2008–annually	**Open Day of the university**, *BME*, Demos for secondary school students.

FULL LIST OF PUBLICATIONS

No. of all independent citations: 28

International Peer-Reviewed Journal Papers

[J1] T. G. Csapó, G. Németh, „Modeling irregular voice in statistical parametric speech synthesis with residual codebook based excitation," *IEEE Journal on Selected Topics in Signal Processing*, Vol. 8., No. 2., pp. 209-220, 2014. IF: 3.297, Times cited: 1.

[J2] T. G. Csapó, G. Németh, „Statistical parametric speech synthesis with a novel codebook-based excitation model," *Intelligent Decision Technologies*, Vol. 8., No. 4., pp. 289-299, 2014.

[J3] T. G. Csapó, „Increasing the naturalness of synthesized speech (PhD summary)," *The Phonetician*, No. 104–105, pp. 88–97, 2012. Times cited: 2.

[J4] T. G. Csapó, T. E. Gráczi, Zs. Bárkányi, A. Beke, S. M. Lulich, „Patterns of Hungarian vowel production and perception with regard to subglottal resonances," *The Phonetician*, No. 99–100, pp. 7–28, 2011.

[J5] T. G. Csapó, Cs. Zainkó, G. Németh, „A Study of Prosodic Variability Methods in a Corpus-Based Unit Selection Text-To-Speech System," *Infocommunications J.*, Vol. LXV., No. I., pp. 32–37, 2010.

International Peer-Reviewed Conference Proceedings

[C1] T. G. Csapó, G. Németh, M. Cernak, „Residual-based excitation with continuous F0 modeling in HMM-based speech synthesis", *SLSP 2015 (3rd International Conference on Statistical Language and Speech Processing)*, accepted, (Budapest, Hungary), 2015.

[C2] T. G. Csapó, S. M. Lulich, „Error analysis of extracted tongue contours from 2D ultrasound images", *Proc. Interspeech 2015*, accepted, (Dresden, Germany), 2015.

[C3] T. G. Csapó, G. Németh, „Automatic transformation of irregular to regular voice by residual analysis and synthesis", *Proc. Interspeech 2015*, accepted, (Dresden, Germany), 2015.

[C4] K. Abari, T. G. Csapó, B. P. Tóth, G. Olaszy, „From text to formants – indirect model for trajectory prediction based on a multi-speaker parallel speech database", *Proc. Interspeech 2015*, accepted, (Dresden, Germany), 2015.

[C5] György Szaszák, T. G. Csapó, P. N. Garner, B. Gerazov, Z. Ivanovski, G. Németh, B. Tóth, M. Secujski, V. Delic, „The SP2 SCOPES Project on Speech Prosody", *Digital speech and image processing (DOGS 2014)*, (Novi Sad, Serbia), 2014.

[C6] A. Teixeira, A. Hämäläinen, J. Avelar, N. Almeida, G. Németh, T. Fegyó, Cs. Zainkó, T. G. Csapó, B. Tóth, A. Oliveira, M. S. Dias, „Speech-centric Multimodal Interaction for Easy-to-access Online Services – A Personal Life Assistant for the Elderly", *Procedia Computer Science (DSAI 2013)*, Vol. 27., pp. 289-397, 2014. Times cited: 5.

[C7] T. G. Csapó, G. Németh, „A novel irregular voice model for HMM-based speech synthesis," *Proc. SSW8 - 8th Speech Synth. Worksh.*, (Barcelona, Spain), pp. 229-234., 2013. Times cited: 1.

[C8] T. G. Csapó, G. Németh, „A novel codebook-based excitation model for use in speech synthesis," *IEEE CogInfoCom 2012*, (Kosice, Slovakia), pp. 661–665, 2012. Times cited: 1.

[C9] É. Székely, T. G. Csapó, B. Tóth, P. Mihajlik, J. Carson-Berndsen „Synthesizing Expressive Speech from Amateur Audiobook Recordings," *SLT 2012*, (Miami), pp. 297–302, 2012. Times cited: 7.

[C10] T. E. Gráczi, S. M. Lulich, T. G. Csapó, A. Beke, „Context and speaker dependency in the relation of vowel formants and subglottal resonances - Evidence from Hungarian," *Proc. Interspeech 2011*, (Florence, Italy), pp. 1901–1904, 2011. Times cited: 1.

[C11] G. Németh, G. Olaszy, T. G. Csapó, „Spemoticons: Text-To-Speech based emotional auditory cues," *ICAD 2011*, (Budapest, Hungary), 2011. Times cited: 4.

[C12] Cs. Zainkó, T. G. Csapó, G. Németh, „Special Speech Synthesis for Social Network Websites," *Lecture Notes In Computer Science*, 6231: pp. 455–463, Paper 58, 2010. Times cited: 1.

[C13] T. G. Csapó, Zs. Bárkányi, T. E. Gráczi, T. Bőhm, S. M. Lulich, „Relation of formants and subglottal resonances in Hungarian vowels," *Proc. Interspeech 2009*, (Brighton, United Kingdom), pp. 484–487, 2009. Times cited: 3.

[C14] G. Németh, M. Fék, T. G. Csapó, „Increasing Prosodic Variability of Text-To-Speech Synthesizers," *Proc. Interspeech 2007*, (Antwerp, Belgium), pp. 474–477. Times cited: 2.

<div align="center" style="color:#3b6ea5">Presentations at International Symposia</div>

[P1] R. Pedro, E. Mazzocco, T. G. Csapó, S. M. Lulich, „Investigation of a tongue-internal coordinate system for two-dimensional ultrasound", *The Journal of the Acoustical Society of America*, Vol. 136, No. 4, p. 2128. *(168th Meeting of ASA, Indianapolis, IN, USA)*, 27–31 Oct 2014.

[P2] T. G. Csapó, S. M. Lulich, „Comparison of tongue contour extraction methods from ultrasound images for use in text-to-speech synthesis", *Inaugural Conference of the Hungarian Cultural Association*, (Bloomington, IN, USA), Apr 6, 2014.

[P3] G. Németh, T. G. Csapó, „Man Machine Interfaces – Statistical parametric speech synthesis using irregular voice models", *EIT ICTLabs workshop*, (Budapest, Hungary), Nov 22, 2013.

[P4] T. G. Csapó, Cs. Zainkó, G. Németh, „Increasing Prosodic Variability of Synthesized Speech in the Context of Human-Machine Communication", *CERiS'10*, (Budapest, Hungary), Mar 8, 2010.

[P5] G. Németh, T. G. Csapó, B. Tóth, „Improving the Quality of Unit Selection and HMM based Speech Synthesis", *FuturICT workshop*, (Budapest, Hungary), Jun 29–30, 2009.

25. September 2015