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Employment

Feb, 2006 – to date	<u>Full professor</u> Department of English and American Studies Constantine the Philosopher University, Nitra, Slovakia
April, 2008 – to date	<u>Research scientist</u> Institute of Informatics, Slovak Academy of Sciences, Slovakia
Sept, 2006 - May, 2007	<u>Visiting professor</u> Department of Cognitive and Linguistic Sciences Brown University, Providence, USA
Feb, 2005 – Feb, 2006	<u>Research scientist</u> Spoken Language Processing Group Department of Computer Science, Columbia University, New York, USA
Sep, 1995 – Aug, 1998	<u>Lecturer</u> Department of English and American Studies Constantine the Philosopher University, Nitra, Slovakia

Education

2019	<u>Professor</u>	Foreign languages and cultures Constantine the Philosopher University, Nitra, Slovakia
2012	<u>Habil. (doc.)</u>	Foreign languages and cultures Constantine the Philosopher University, Nitra, Slovakia
2005	<u>Ph.D.</u>	Linguistics New York University, New York, USA
2000	<u>M.A.</u>	Linguistics New York University, New York, USA
1995	<u>M.A.(Ed.)</u>	TEFL and Music Constantine the Philosopher University Nitra, Slovakia

Doctoral Dissertation

Title: Dynamics and Transparency in Vowel Harmony
 Advisor: Adamantios I. Gafos
 Description: Based on experimental articulatory data of transparent vowels in Hungarian vowel harmony, the central claim defended and formalized in this dissertation is that continuous phonetic details of all stem vowels including the transparent vowels are relevant for the phonological alternations in suffixes.

Fellowships/Grants awarded

2020-2024 Conversational Brains (COBRA). European Union H2020 – Marie Skłodowska Currie Action – ITN
 2014-2017 Relationship between trust and entrainment in speech. Air Force Office of Scientific Research; FA9550-15-1-0055.
 2014-2015 Mobility cooperation grant between Slovak and Argentinean Academies of Sciences
 2009-2010 Alexander von Humboldt Fellowship, Ludwig Maximilians University, München, Germany
 2008 Andrew W. Mellon Fellowship, University of Edinburgh, The Institute for Advanced Studies in the Humanities
 2000 Linguistics Department Fellowship, Ohio-State University, Columbus
 1999-2004 Linguistics Department Fellowship, New York University, New York
 1998-1999 Fulbright Fellowship, New York University, New York
 1994 Tempus Grant, European Union, Middlesex University, London

Professional Service

2013 – to date Managing Editor, *Topics in Linguistics* [ISSN 1337-7590]
 2018 – to date Editorial Board Member, *Journal of International Phonetics Association* [ISSN 0025-1003]
 2013 – 2016 Associate Editor, *Laboratory Phonology* [ISSN 1868-6346]

Academic awards

2022 Prize of the Literary Fund for scientific literature for the book *Investigating Spoken English: A Practical Guide to Phonetics and Phonology Using Praat*. The awarded also by the dean the Dean of Faculty of Humanities and the rector of the Constantine the Philosopher University
 2017 Prize of the Dean of Faculty of Humanities for research and grant activities
 2012 Most notable result in basic research (Institute of Informatics, Slovak Academy of Sciences) for Beňuš (2011a).
 2012 Prize of the Dean of Faculty of Humanities for outstanding publications.

2010 Slovak Academy of Sciences Award (2 research teams) “Fluent speech recognition with a large dictionary for automatic transcription of parliamentary debates”

Publications

- Kruyt, J., de Jong, D., D'Ausilio, A., **Beňuš, Š.** (2023). Measuring Prosodic Entrainment in Conversation: A Review and Comparison of Different Methods. *Journal of Speech, Language, and Hearing Research* 66(11), 4280-4314. doi:10.1044/2023_JSLHR-23-00094.
- Kejriwal, J., **Beňuš, Š.**, Rojas-Barahona, L.M. (2023). Unsupervised Auditory and Semantic Entrainment Models with Deep Neural Networks. *Proc. INTERSPEECH 2023*, 2628-2632, doi: 10.21437/Interspeech.2023-1929.
- Kejriwal, J., **Beňuš, Š.** (2023). Relationship between auditory and semantic entrainment using Deep Neural Networks (DNN). *Proc. INTERSPEECH 2023*, 2623-2627, doi: 10.21437/Interspeech.2023-1947.
- Mareková, L., Kruyt, J., **Beňuš, Š.** (2023). The effect of (non-)native language and task complexity on speech entrainment. *20th International Congress of Phonetic Sciences (ICPhS)*, Aug 2023, Prague, Czech Republic, 1548-1552. [<https://guarant.cz/icphs2023/811.pdf>]
- Figueroa, C., **Beňuš, Š.**, Skantze, G. (2023). Prosodic Alignment in Different Conversational Feedback Functions. *20th International Congress of Phonetic Sciences (ICPhS)*, Aug 2023, Prague, Czech Republic, 1514-1518. [<https://guarant.cz/icphs2023/734.pdf>]
- Kruyt, J., Polónyiová, K., Ostatníková, D., **Beňuš, Š.** (2023). Lexical entrainment on target words during task-oriented interaction in children with and without autism spectrum disorder. *Proceedings of the 27th Workshop on the Semantics and Pragmatics of Dialogue*, Aug 2023, Maribor, Slovenia, 6-14. Andy Lücking, Chiara Mazzocconi & Darinka Verdonik (eds.), ISSN 2308-2275. [https://www.semdial.org/anthology/Z23-Kruyt_semdial_0004.pdf]
- Kruyt, J., Polónyiová, K., Ostatníková, D., **Beňuš, Š.** (2023). Global and local prosodic entrainment in a task-oriented interaction in autistic and neurotypical children. In *Proceedings of the First Workshop on Connecting Multiple Disciplines to AI Techniques in Interaction-centric Autism Research and Diagnosis (ICARD 2023)*, pages 1–11, Prague, Czechia. Association for Computational Linguistics. [<https://aclanthology.org/2023.icard-1.1.pdf>]
- Beňuš, Š.** (2022). Prosodic imitation of audiovisual and audio-only prompts in L2 English. *Proc. Speech Prosody 2022*, 787-791, doi: 10.21437/SpeechProsody.2022-160.
- Kruyt, J., **Beňuš, Š.**, Faget, C., Lancon, Ch., Champagne-Lavau, M. (2022). Prosodic and lexical entrainment in adults with and without schizophrenia. *Proc. Speech Prosody 2022*, 125-129, doi: 10.21437/SpeechProsody.2022-26.
- Kejriwal, J., **Beňuš, Š.**, Trnka, M. (2022). Stress detection using non-semantic speech representation. *32nd International Conference RADIOELEKTRONIKA, 2022*, pp. 1-5, doi: 10.1109/RADIOELEKTRONIKA54537.2022.9764916.

- Sayers, D., Sousa-Silva, R., Höhn, S., et al. (2021). The Dawn of the Human-Machine Era: A forecast of new and emerging language technologies. Report for EU COST Action CA19102 'Language In The Human-Machine Era'. www.lithme.eu.
- Kruyt, J., **Beňuš, Š.** (2021). Prosodic entrainment in individuals with autism spectrum disorder. *Topics in Linguistic* 22(2), 47-61.
- Sabo, R., **Beňuš, Š.**, Trnka, M., Ritomský, M., Rusko, M., Schaper, M., Szabo, J. (2021). Database of Speech under Stress in Slovak. *Jazykovedný časopis* 72 (2), 579-589.
- Mareková, L., **Beňuš, Š.** (2020). Slovak 'no' and its pragmatic meanings and functions in relation to prosody. *Topics in Linguistics* 21(1), 1-14.
- Hirschberg, J., **Beňuš, Š.**, Gravano, A., Levitan, R. (2020). Prosody in discourse and speaker state. In Gussenhoven, Carlos and Chen, Aoju (eds.) *The Oxford Handbook of Language Prosody*. Oxford University Press, pp. 468-476.
- Karpinsky, M., Andreeva, B., Asu, E. L., Daugavet, A., **Beňuš, Š.**, Mády, K. (2020). Central and Eastern Europe. In Gussenhoven, Carlos and Chen, Aoju (eds.) *The Oxford Handbook of Language Prosody*. Oxford University Press, pp. 225-235.
- Gálvez, R., Gravano, A., **Beňuš, Š.**, Levitan, R., Trnka, M., Hirschberg, J. (2020). An empirical study of the effect of acoustic-prosodic entrainment on the perceived trustworthiness of conversational avatars. *Speech Communication* 124, 46-67.
- Brusco, P., Vidal, J., **Beňuš, Š.**, Gravano, A. (2020). A cross-linguistic analysis of the temporal dynamics of turn-taking cues using machine learning as a descriptive tool. *Speech Communication* 125, 24-40.
- Suni, A., Kallio, H., **Beňuš, Š.**, Šimko, J. (2019). Characterizing second language fluency with global wavelet spectrum. Proceedings of the 19th International Congress of Phonetic Sciences, Melbourne, Australia. Calhoun, S., Escudero, P., Tabain, M. & Warren, P. (eds.). Canberra: Australasian Speech Science and Technology Association Inc., p. 1947-1951.
- Heldner, M., Włodarczak, M., **Beňuš, Š.**, Gravano, A. (2019). Voice Quality as a Turn-Taking Cue. In: Proceedings of INTERSPEECH, pp. 4165–4169.
- Beňuš, Š.**, Sabo, R., Trnka, M. (2019). Word guessing game with a social robotic head. In: Proceedings of Information Technologies: Applications & Theory (ITAT).
- Beňuš, Š.**, Sabo, R., Trnka, M. (2019). Teaching L1 and L2 communication skills with a robotic head. In: 17th IEEE International conference on emerging e-learning technologies and applications, pp. 69-75.
- Kleman, P., **Beňuš, Š.** (2019). Correlation of perceived fluency with phonetic measures of speech rate and pausing. In: Proceedings of Information Technologies: Applications & Theory (ITAT).
- Reichel, U., **Beňuš, Š.**, Mády, K. (2018). Entrainment profiles: Comparison by gender, role, and feature set. *Speech Communication* 100, 46-57.
- Beňuš, Š.**, Trnka, M., Kuric, E., Marták, L., Gravano, A., Hirschberg, J., Levitan, R. (2018). Prosodic entrainment and trust in human-computer interaction. In: Proceedings of 9th International Conference on Speech Prosody, pp. 220-224.
- Gauder, L., Reartes, M., Gálvez, R., **Beňuš, Š.**, Gravano, A., (2018). Testing the Effects of Acoustic/Prosodic Entrainment on User Behavior at the Dialog-Act Level. In: Proceedings of 9th International Conference on Speech Prosody, pp. 374-378.

- Reichel, U., Mády, K., **Beňuš, Š.** (2018). Acoustic profiles for prosodic headedness and constituency. In: Proceedings of 9th International Conference on Speech Prosody, pp. 699-703.
- Beňuš, Š.**, Patacchiola, M., Trnka, M., Zanatto, D., Sabo, R., Cangelosi, A. (2018). Do people trust robots whose prosody synchronizes with the user? In Šašinka, Č., Strnadová, A., Šmideková, Z., Juřík, V. (eds.). Kognice a umělý život, sborník příspěvků [Cognition and Artificial Intelligence, conference proceedings], pp. 9-10, Brno: Flow.
- Cerňak, M., **Beňuš, Š.**, Lazaridis, A. (2017). Speech_vocoding_for_laboratory_phonology. *Computer Speech & Language*, 42, 100-121.
- Beňuš, Š.**, Šimko, J., Lehtinen, M. (2017). Kinematic signatures of prosody in Lombard speech. In: Proceedings of INTERSPEECH, pp. 3013-3017.
- Gálvez, R., **Beňuš, Š.**, Gravano, A., Trnka, M. (2017). Prosodic facilitation and interference while judging on the veracity of synthesized Statements In: Proceedings of INTERSPEECH, pp. 2331-2335.
- Beňuš, Š.**, Šimko, J. (2016). Stability and variability in Slovak prosodic boundaries. *Phonetica* 73(3-4), 163-193.
- Šimko, J., **Beňuš, Š.**, Vainio, M. (2016). Hyperarticulation in Lombard speech: Global coordination of the jaw, lips and the tongue. *Journal of the Acoustical Society of America*, 130(4), 2116-2127.
- Beňuš, Š.** (2016). The prosody of backchannels in Slovak. In: Proceedings of 8th International Conference on Speech Prosody, pp. 75-79.
- Gravano, A., Brusco, P., **Beňuš, Š.** (2016). Who Do You Think Will Speak Next? Perception of Turn-Taking Cues in Slovak and Argentine Spanish In: Proceedings of INTERSPEECH, pp. 1265-1269.
- Levitan, R., **Beňuš, Š.**, Gálvez, R., Gravano, A., Savoretti, F., Trnka, M., Weise, A., Hirschberg, J. (2016). Implementing Acoustic-Prosodic Entrainment in a Conversational Avatar. In: Proceedings of INTERSPEECH, pp. 1166-1170.
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- Beňuš, Š.**, Šimko, J. (2015). Prosodic boundaries in Lombard speech. Proceedings of the 18th International Congress of Phonetic Sciences.
- Bárkányi, Zs., **Beňuš, Š.** (2015). Prosodic conditioning of pre-sonorant voicing. Proceedings of the 18th International Congress of Phonetic Sciences.
- Bučar Shigemori, L., Pouplier, M., **Beňuš, Š.** (2015). Phonemic length and phrasal accent in Slovak consonantal and vocalic nuclei. Proceedings of the 18th International Congress of Phonetic Sciences.
- Šuch, O., **Beňuš, Š.** (2015). A new proposal for metric in multidimensional scaling. Proceedings of the 18th International Congress of Phonetic Sciences.
- Gravano, A., **Beňuš, Š.**, Levitan, R., Hirschberg, J. (2015). Backward mimicry and forward influence in prosodic contour choice in Standard American English. Proceedings of the 15th INTERSPEECH, pp. 1839-1843.
- Reichel, U. D., Mády, K., **Beňuš, Š.** (2015). Parameterization of prosodic headedness. Proceedings of the 15th INTERSPEECH, pp. 929-933.

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- Beňuš, Š.** (2015). Communicative Entrainment and Linguistic Representations. In Bondaruk, A., Prazmowska, A. (eds.) *Within Language Beyond Theories*, Cambridge Scholars Publishing, pp. 337-360.
- Levitan, R., **Beňuš, Š.**, Gravano, A., Hirschberg, J. (2015). Entrainment and Turn-Taking in Human-Human Dialogue. *Proceedings of AAAI symposium on Turn-Taking and Coordination in Human-Machine Interaction*, pp. 44-51.
- Beňuš, Š.**, Gravano, A., Levitan, R., Levitan, S., Willson, L., Hirschberg, J. (2014). Entrainment, Dominance and Alliance in Supreme Court Hearings. *Knowledge Based Systems*, 71, 3-14.
- Beňuš, Š.** (2014a). Social aspects of entrainment in spoken interaction. *Cognitive Computation*, 6(4), 802-813.
- Beňuš, Š.**, Šimko, J. (2014a). Emergence of prosodic boundary: continuous effects of temporal affordance on inter-gestural timing. *Journal of Phonetics*, 44, 110-129
- Beňuš, Š.** (2014b). Phonological Structure and Articulatory Phonetic Realization of Syllabic Liquids. In: Emonds, J. & Janebová, M. (eds.) *Language use and linguistic structure*; Proceedings of the Olomouc Linguistics Colloquium 2013, pp. 281-291.
- Beňuš, Š.** (2014c). Conversational Entrainment in the Use of Discourse Markers. In: S. Basis et al. (eds.) *Recent Advances of Neural Networks Models and Applications, Smart innovations, systems, and technologies 26*. Springer, pp. 345-352.
- Beňuš, Š.**, Trnka, M. (2014). Prosody, voice assimilation, and conversational fillers. In: *Proceedings of 7th International Conference on Speech Prosody*, pp. 75-79.
- Beňuš, Š.**, Levitan, R., Hirschberg, J., Gravano, A., Darjaa, S. (2014). Entrainment in Slovak collaborative dialogues. *Proceedings of the 4th IEEE Conference on Cognitive Infocommunications*, pp. 309-313.
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- Beňuš, Š.**, Reichel, U. D., Mády, K. (2014). Modeling Accentual Phrase Intonation in Slovak and Hungarian. In: Veselovská, L., Janebová, M. (eds.) *Complex Visible Out There*, pp. 677-690, Palacký University, Olomouc.
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- Šimko, J., **Beňuš, Š.**, Vainio, M. (2014). Hyperarticulation in Lombard speech: A preliminary study. In: *Proceedings of 7th International Conference on Speech Prosody*, pp. 869-873.
- Mády, K., Reichel, U., **Beňuš, Š.** (2014). Accentual phrases in Slovak and Hungarian. In: *Proceedings of 7th International Conference on Speech Prosody*, pp. 752-756.
- Cao, H., **Beňuš, Š.**, Gur, R., Verma, R., Nenkova, A. (2014). Prosodic cues for emotion: analysis with discrete characterization of intonation. In: *Proceedings of 7th International Conference on Speech Prosody*, pp. 130-134.
- Trnka, M., Rusko, M., Darjaa, S., Sabo, R., Pálffy, J., **Beňuš, Š.**, Ritomský, M. Dravecký, M. (2014). RPKOM-GEN: a system for testing speech recognition in adverse acoustic

- conditions using speech synthesis. In *CONTENT 2014: the sixth International Conference on Creative Content Technologies*, pp. 17-21. ISBN 978-1-61208-342-1.
- Rusko, M., Trnka, M., Rusko, M., Darjaa, S., Sabo, R., Pálfy, J., **Beňuš, Š.**, Ritomský, M. (2014). Test signals generator for ASR under noisy and reverberant conditions using expressive TTS. In *Forum Acusticum*. - Kraków: European Acoustics Association.
- Beňuš, Š.** (2013). Cognitive aspects of communicating information with conversational fillers in Slovak. *Proceedings of the 4th IEEE Conference on Cognitive Infocommunications*, pp. 271-276.
- Hoole, P., Pooplier, M., **Beňuš, Š.**, Bombien, L. (2013). Articulatory coordination in obstruent-sonorant clusters and syllabic consonants: Data and modelling. In: L.Spreafico, A. Vietti (eds.) *Rhotics: new data and perspectives*. Bolzano university press, pp. 81-98.
- Beňuš, Š.** (2012). Phonetic variation in Slovak yer and non-yer vowels. *Journal of Phonetics* 40(3), 535-549.
- Gravano, A., Hirschberg, J., **Beňuš, Š.** (2012). Affirmative cue words in task-oriented dialogue. *Computational Linguistics*, 38(1), 1-39.
- Beňuš, Š.** (2012). Prosodic forms and pragmatic meanings: the case of the discourse marker 'no' in Slovak. *Proceedings of the 3rd IEEE Conference on Cognitive Infocommunications*, pp. 77-81.
- Beňuš, Š.**, Levitan, R., Hirschberg, J. (2012). Entrainment in spontaneous speech: the case of filled pauses in Supreme Court hearings. *Proceedings of the 3rd IEEE Conference on Cognitive Infocommunications*, pp. 793-797. (Best Paper Award).
- Rusko, M., Hamar, J., **Beňuš, Š.** (2012). Acoustic, Semantic and Personality Dimensions in the Speech of Traditional Puppeteers. *Proceedings of the 3rd IEEE Conference on Cognitive Infocommunications*, pp. 83-87.
- Beňuš, Š.**, Mády, K. (2012). Stress and phonemic length in the perception of Slovak vowels. *Proceedings of the 6th Speech Prosody Conference*, pp. 516-519.
- Beňuš, Š.**, Šimko, J. (2012). Rhythm and tempo in Slovak. *Proceedings of the 6th Speech Prosody Conference*, pp. 502-505.
- Levitan, R., Gravano, A., Willson, L., **Beňuš, Š.**, Hirschberg, J., Nenkova, A. (2012). Acoustic-Prosodic Entrainment and Social Behavior. *Proceedings of the 2012 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies*, pp. 11-19.
- Šimko, J., **Beňuš, Š.** (2012). Vocalic and consonantal intervals under continuous rate variation. Poster presented at the 13th Conference on Laboratory Phonology [abstract].
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- Beňuš, Š.** (2011b). Adaptation in turn-initiation. In: A. Esposito et al., (Eds.). *Toward Autonomous, Adaptive, and Context-Aware Multimodal Interfaces: Theoretical and*

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Research experience

LMU Munich	Researcher Collecting and analyzing articulatory data with electromagnetometry
Columbia University	Research scientist Developing a corpus of spontaneous speech Supervising the annotation of prosodic and discourse information Quantitative and qualitative analysis of the relationship between prosody and pragmatic/discourse functions of speech
Haskins Laboratories	Research assistant Collecting and analyzing articulatory data, NIH Grant HD-01994
New York University	Research Assistant Creating an annotated corpus of Singapore English metathesis and subsequent analysis
AT&T	Research consultant Annotating and analyzing English intonation
Ohio-State University	Student, Summer School in Linguistics Research methods in Laboratory Phonology, English Intonation, Quantitative Methods

Teaching experience

- Constantine the Philosopher University, Nitra, Slovakia
2006-to date, 1995-8 Phonetics and Phonology of English
Discourse Analysis
Public Speaking
Introduction to the Study of Language
American English
- Brown University, Providence, USA
2007 Phonetics-Phonology Interface
Speech prosody
2006 Introduction to Phonology
- New York University, New York, USA
2004, 2000 Sound and Language (instructor of record)
2003 Phonological Analysis (teaching assistant)
Language (instructor of record)
2001 Linguistic Perspectives (preceptor)
- E-KU, language school, Nitra, Slovakia
1995-8 Teaching English as a foreign language

Technical expertise

- ToBI (Tones and Break Indexes) – labeling and analysis of intonation
Praat – labeling and analysis of acoustic aspects of speech
Perl, Java, Unix, Matlab – basic computational skills
Electromagnetography, Ultrasound – collection of articulatory data