

Greg P. Kochanski

Oxford University Phonetics Laboratory

greg.kochanski@phon.ox.ac.uk

- Research* ◇ **University of Oxford**, 6/2003-present Oxford, UK
- Experience* Senior Research Fellow, Oxford University Phonetics Laboratory. Phonetics, psycholinguistics, mathematical models of cognitive strategies for speech and motor control. Current focus on speech rhythm and exemplar models of production.
- ◇ **Rutgers University**, 9/2002–6/2003 NEW BRUNSWICK, NJ
Visiting scholar, department of Chemistry.
 - ◇ **Bell Laboratories/Lucent Technologies**, 5/1987–9/2002 MURRAY HILL, NJ
Member of Technical Staff.
 - ◇ **Modeling of Articulatory Dynamics for Speech**, 1996–9/2002: Modeling of speech and intonation, using novel physiologically-based models of speech generation. This led to a flexible description of intonation, and the first quantitative understanding of how one can emphasize a word in Chinese. Signal processing for improved speech data acquisition.
 - ◇ **Speech** 2001–2002: Developed acoustic reverse Turing test, applying speech recognition for data security Microphone arrays and signal processing for improved speech data acquisition. Designed speech synthesizers. Computational linguistics.
 - ◇ **Astrophysics**, 1994–1999: Observational astrophysics, using strong gravitational lensing as a probe of the mass distribution in clusters of galaxies.
 - ◇ **Classifiers and Human Interfaces**, 1995–1996: Human interface studies and machine learning systems.
 - ◇ **Nanomaterials and Condensed Matter Physics**, 1987–1999: Led team of up to 6 researchers.
- Education* ◇ **Massachusetts Institute of Technology**, 1982–1987 CAMBRIDGE, MA
Ph.D. thesis: “Magnetic Trapping and Cooling of Atomic Hydrogen”. Modeling and measurement of spatial, momentum, and spin distributions, along with chemical reaction rates. Built and modeled a novel low-temperature hydrogen maser.
- ◇ **1978–1982** S.B. Physics. First place, Mechanical Engineering Design Contest. Computer science and Engineering courses.
- Other* ◇ Taught courses at the University of Oxford, Montclair State University, and ICSLP2002. Tutorials at Oxford for Psycholinguistics, Phonetics/Phonology, and Statistics for Linguists.
- ◇ Montclair State University (NJ) Linguistics Department Advisory Board, 2002, 2003.
- Sample Refereed Publications* “The Law of Categorical Judgement (Corrected) and the Interpretation of Changes in Psychophysical Performance”, Burton S. Rosner and Greg Kochanski *Psychological Review* 2009, 116(1) p. 116–128. Doi:10.1037/a0014463.
- “Connecting Intonation Labels to Mathematical Descriptions of Fundamental Frequency”, Grabe, E., Kochanski, G., Coleman, J., 2007, *Language and Speech* 50(3), 281–310.

“Image quality in non-gated versus gated reconstruction of tongue motion using magnetic resonance imaging: a comparison using automated image processing”, Christopher Alvey, C. Orphanidou, J. Coleman, A. McIntyre, S. Golding and G. Kochanski, 2008, *Intl. J. of Computer Assisted Radiology and Surgery* v3(5), 457-464, doi:10.1007/s11548-008-0218-5.

“Tools for Searching, Annotation and Analysis of Speech, Music, Film and Video: A Survey”, Marsden, A., Nock, H., Mackenzie, A., Lindsay, A., Coleman, J., and Kochanski, G. *Literary and Linguistic Computing* 2007. doi:10.1093/lc/fqm021

“Loudness Predicts Prominence; Fundamental Frequency Lends Little”, Kochanski, G., Grabe, E., Coleman, J., Rosner, B., 2005 *J. Acoustical Society of America* 11(2), 1038–1054. <http://dx.doi.org/10.1121/1.1923349>.

“Quantitative Measurement of Prosodic Strength in Mandarin”, Kochanski, G., Shih, C., Jing, H. 2003 *Speech Communication*, 41(4), 625–645. [http://dx.doi.org/10.1016/S0167-6393\(03\)00100-6](http://dx.doi.org/10.1016/S0167-6393(03)00100-6)

“Prosody Modeling with Soft Templates”, Kochanski, G. P., Shih, C., 2003 *Speech Communication* 39(3–4), 311–352.

“A Quasi-Glottogram signal”, Kochanski, G. P. and Shih, Chilin, 2003 *J. Acoustic. Soc. Amer.* 114(4) 2206–2216. <http://dx.doi.org/10.1121/1.1608964>

Conference
Proceedings and
Other
Papers

“Bootstrap Markov chain Monte Carlo and optimal solutions for the Law of Categorical Judgment (Corrected)”, Greg Kochanski and Burton S. Rosner (2010), *arXiv:1008.1596* available from <http://arxiv.org/abs/1008.1596>.

“Long-Range Prosody Prediction and Rhythm”, Greg Kochanski, Anastassia Loukina, Elinor Keane, Chilin Shih and Burton Rosner Proceedings of Speech Prosody 2010 (100222) p.1–4. Available from <http://speechprosody2010.illinois.edu/papers/100222.pdf>.

“Rhythm measures with language-independent segmentation”, Anastassia Loukina, Greg Kochanski, Chilin Shih, Elinor Keane and Ian Watson Interspeech 2009. ISSN 1990-9772, Brighton, UK, pp 1531–1534.

“Precision of Phoneme Boundaries Derived using Hidden Markov Models”, Ladan Baghai-Ravary, Greg Kochanski, and John Coleman Interspeech 2009. ISSN 1990-9772, Brighton, UK. Pp. 2879–2882.

*“Testing the Ecological Validity of Repetitive Speech”, Kochanski, G. and Orphanidou, C., 10 Aug 2007, *International Congress of Phonetic Sciences (ICPhS 2007)*, Saarbrücken, Germany. <http://kochanski.org/gpk/papers/2007/icphs.pdf>

Funding

- ◇ UK Economics and Social Research Council award RES-062-23-2566, *Word joins in real-life speech: a large corpus-based study*, 2010–2013. Co-I.
- ◇ UK JISC and US NSF: “Digging into Data: Mining a Year of Speech”, 2010–2011, co-I.
- ◇ UK Economics and Social Research Council awards RES-062-23-1172: *Testing theories of speech production with neologisms* (2008–2011), and RES-062-23-1323: *Comparing dialects using statistical measures of rhythm* (2008–2010). Principal investigator.
- ◇ UK ESRC award RES-000-23-1094, *Articulation and Coarticulation in the Lower Vocal Tract*, 2005–2007. Principal investigator. (Project was rated “outstanding”.)
- ◇ Oxford University Research Development Fund award RDF/1*181, *Using Iterative Mimicry to Probe the Mental Representation of Intonation*, 2004–2005. Principal investigator.