

Daniel P.W. Ellis

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Professional preparation:

Cambridge University, U.K.	Engineering / Elec. & Info. Sci.	BA(hons), 1987
M.I.T., Cambridge MA	Elec. Eng and Comp. Science	S.M., 1992
M.I.T., Cambridge MA	Electrical Engineering	Ph.D., 1996
ICSI Berkeley CA	Speech recognition (postdoctoral studies)	1996-2000

Appointments:

Assistant Professor, Dept. of Electrical Engineering, Columbia University August 2000-
Research into sound content analysis, understanding and retrieval including speech recognition and source separation. Courses taught: Digital Signal Processing, Speech and Audio Processing and Recognition.

Research Scientist, International Computer Science Institute May 1999-August 2000
Postdoctoral Scholar, International Computer Science Institute May 1996-April 1999

Speech recognition research including feature design, system architectures, information retrieval and applications of hearing models and auditory scene analysis. With Prof. Nelson Morgan, supervision of UC Berkeley graduate students in these areas.

Research Assistant, M.I.T. Media Lab Perceptual Computing 1989-1996

Part of Machine Listening Group, researching computer models of human sound organization including perception of ambient sounds and organization of music and other mixtures.

Tutor, MIT Office for Minority Education 1994-1995

One-on-one tutoring of undergraduates in areas of probability, signals and systems, etc.

Intern, Interval Research Corporation, Palo Alto CA June-August, 1994

Research on auditory representations as part of a speech separation project.

Member of Technical Staff, AWARE Inc., Cambridge MA 1991-1993

Research and development in high-quality audio compression.

Publications:

Related to this proposal:

M.Cooke and D. Ellis (2001). "The auditory organization of speech and other sources in listeners and computational models," *Speech Communication* 34(3-4), pp. 141-177.

M. Reyes-Gomez, N. Jovic, and D. Ellis (2005). "Deformable Spectrograms", AI & Statistics 2005, Barbados, Jan 2005.

A. Berenzweig, B. Logan, D. Ellis and B. Whitman (2003). "A large-scale evaluation of acoustic and subjective music similarity measures", *Proc. Int. Conf. on Music IR*, Baltimore.

J. Barker, M. Cooke, & D. Ellis (2004). "Decoding speech in the presence of other sources," *Speech Communication* 43(4), 2004.

D. Ellis (1999). "Using knowledge to organize sound: The prediction-driven approach to computational auditory scene analysis, and its application to speech/nonspeech mixtures," *Speech Communication* 27, pp. 281-298.

Other publications:

L. Kennedy and D. Ellis (2003). "Pitch-based emphasis detection for characterization of meeting recordings," *Proc. IEEE ASRU-03*, St. Thomas USVI.

M. Athineos and D. Ellis (2003). "Sound Texture Modelling with Linear Prediction in both Time and Frequency Domains," *Proc. ICASSP-03*, Hong Kong.

D. Ellis, B. Whitman, A. Berenzweig, S. Lawrence (2002). "The Quest for Ground Truth in Musical Artist Similarity", *Proc. Int. Conf. on Music IR ISMIR-02*, Paris, October 2002.

D. Ellis and M.J. Reyes-Gomez (2001). "Investigations into Tandem Acoustic Modeling for the Aurora Task," *Proc. Eurospeech-01*, Denmark.

D. Ellis (2001). "Detecting Alarm Sounds" *Proc. CRAC workshop, Eurospeech 2001*, Denmark.

Synergistic activities:

Since 1993, administrator of the "AUDITORY" list, an email discussion list for researchers in auditory organization (currently 872 participants in over 30 countries).

Co-organizer of NSF Workshop on Speech Separation, Montreal, October 2003.

Chair of Workshop on Consistent and Reliable Acoustic Cues CRAC-2001 at Eurospeech-2001 in Aalborg, Denmark, September 2001. Currently editing a special issue of *Speech Communication* arising from this event.

Organizing committee member for Workshops on Computational Auditory Scene Analysis in 1997 and 1999; Treasurer of 1997 IEEE Audio Workshop; Co-chair of Workshop on Consistent and Reliable Acoustic Cues at Eurospeech 2001.

Reviewer for *Speech Communications*, *Computer Speech and Language*, *IEEE Transactions on Speech and Audio Processing*, *IEEE International Conference on Acoustics, Speech and Signal Processing*, *Neural and Information Processing Systems* meetings etc.

NSF review panel member in 2000 and 2003.

Author of numerous public-domain software tools for sound analysis and processing, including the "SPRACHcore" connectionist speech recognition package.

Collaborators & other affiliations:

Collaborators:

D. Abberley (Autonomy Ltd.), J. Barker (U. Sheffield), J. Bilmes (U. Washington), J.-M. Boite (FPMs, Belgium), H. Bourlard (IDIAP, Switzerland), M. Cooke (U. Sheffield), J. Ferreira (UPM, Spain), E. Fosler (OSU), D. Genoud (Nuance), P. Green (U. Sheffield), H. Hermansky (OGI), P. Jain (OGI), A. Janin (ICSI), S. Kajarekar (OGI), K. Kirchhof (U. Washington), S. Lawrence (Google), N. Morgan (ICSI), A. Morris (IDIAP, Switzerland), M. Ostendorf (U. Washington), T. Pfau (ICSI), B. Raj (MERL), S. Renals (U. Sheffield), G. Rigoll (Berlin U., Germany), T. Robinson (Autonomy Ltd.), E. Striberg (SRI), S. Sharma (Intel), R. Singh (CMU), S. Sivasdas (OGI), A. Stolcke (SRI), B. Whitman (MIT), G. Williams (Lernout & Hauspie), A. Zakhor (UC Berkeley).

Advisors at graduate school:

B. Vercoe (MIT Media Lab), L. Braid (MIT EECS), B. Gold (MIT Lincoln Laboratory).

Advisees:

Past interaction with: B. Kingsbury (IBM), N. Mirghafori (Nuance), G. Williams (Phonetic Systems), S. Wu (Nuance); current students: M.J. Reyes-Gomez, A.L. Berenzweig, R.J. Turetsky, M. Athineos, J. Liu, A. Sheh (all of Columbia Univ.), P. Scanlon (UCDublin, Ireland), S. Keene (Mathworks), E. Lopez (Liverpool).