Resume | Phonetics / Data Science / NLP

Daniel Brenner, Ph.D

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Citizenship: U.S.A.

Languages:
U.S. English (native)
Japanese (fluent, 10+ yrs)
Mandarin (fluent, 10+ yrs)

Selected Employment & Education

2015 –2017 **Postdoctoral Research Fellow**
Alberta Phonetics Laboratory, University of Alberta

- φ Designed annotation schema for acoustic mark-up of speech corpora, and managed a team of graduate and undergraduate lab assistants in the annotation work
- φ Selected and adapted/homogenized data sets from disparate sources to answer a number of important speech science questions
- φ Coded and debugged experimental presentation protocols (E-Prime, MATLAB, Praat, Python) for Alberta Phonetics Laboratory research projects
- φ Coded and optimized data cleaning and validation architecture in R for the Massive Auditory Lexical Decision (MALD) database, a large-scale psycholinguistic database with numerous messy manually-generated data fields
- φ Performed extensive exploratory, confirmatory, and inferential data analysis on MALD and many other data sets (including linear/logistic/multinomial regression, Linear Mixed Effects Modeling, Generalized Additive Mixed Modeling, ANOVA, random forests, clustering, and other analyses in R)
- φ Compiled/engineered an array of features capturing cues listeners use to identify and descriminate speech sounds
- φ Presented research findings at numerous national and international conferences
- φ Served as reviewer for the Journal of the Acoustical Society of America, the Journal of Laboratory Phonology, the Journal of Linguistics, Language & Speech, Speech Prosody, Mental Lexicon, and the Arizona Linguistics Circle.

2012 –2015 **Ph.D, Linguistics (Phonetics, Cognitive Science specializations)**
University of Arizona.

- Designed and coded software for the annotation and acoustic mark-up of phonetic corpora; drafted guidelines; trained and managed teams of graduate and undergraduate annotators
- Worked on several large-scale NSF- and NIH-funded research projects, coaching speakers and managing studio recordings, preparing experimental software, regularizing data, and writing presentations and publications
- NSF research fellowship; SBSRI doctoral research grant
- Chaired the Arizona Linguistics Circle conference in 2012, and served on the organizing committee in 2010, 2011.
- Served as editor for Coyote Papers in 2011, and 2012

2010 –2011 **Research Fellow**
European Union Sound-to-Sense (S2S) Project, Radboud University, Nijmegen, the Netherlands

- Prepared conversational speech corpora for phonetic research
- Developed an annotation framework, drafted detailed guidelines for annotators; wrote a software wrapper for HTK for automatic phonetic annotation of the corpora, and assessed performance relative to human inter-rater agreement

2008 –2010 **M.S., Human Language Technology**
Linguistics, University of Arizona.

- Algorithms and discrete math, statistical Natural Language Processing, speech technology (recognition and synthesis), machine learning
- Perl, Python, Java, BASH, and Prolog
- Created a framework for manual orthographic transcription of conversational speech corpora and wrote wrapper software for automatic phonetic transcription using the Hidden Markov Model Toolkit
- Assessed alignment performance with respect to human phonetic annotator agreement

Quick Summary & Skills

- φ Experienced in all stages of research project management and the data analysis cycle
- φ Text regularization, regular expressions, parsing, text mining, web crawling, data source integration, corpus research, data visualization, cross-validation
- φ Regression (linear, logistic, multinomial, ANOVA, linear mixed effects/hierarchical models), Discriminant Analysis, Generalized Additive Mixed Models, classification methods, structural equation modeling, latent variable analysis; exploratory, confirmatory, inferential, and predictive modeling
- φ Hidden Markov Models, Support Vector Machines, clustering, Bayesian classifiers, Deep Neural Networks (Python Keras, TensorFlow); sparse and high-dimensional data; testing and validation, confidence regions, decision theory, bagging
- φ R, Python, BASH, Perl, Praat, LaTeX, Matlab, Java, HTML
- φ Postdoctoral-level training in statistics, experimental design, and data collection methods in the context of human behavioral research (phonetics, psycholinguistics, cognitive science)
- φ Demonstrated ability in generating deep-rooted questions and constructing methods to answer them
- φ Experience competing for, procuring, and managing research grants
- φ Managed labs, supervised and trained teams of undergraduate and graduate research assistants on research projects; designed data mark-up schemes, composed procedural guidelines and other training materials
- φ Published research articles; delivered numerous technical presentations at national and international conferences