

# Justin Hugues-Nuger

955 Pine Street Apt 15  
San Francisco, CA 94108

(415) 938-6483  
justin@leitmotiv.org

## Employment History

- 2019–present **Amazon Music, Senior Language Engineer** (San Francisco, CA)
- Development and optimization of the language modeling (ASR and NLU) components of the conversational music recommendation experience in the Amazon Music × Alexa ecosystem.
  - Consultation with voice designers to optimize the spoken dialogue system design and maximize customers' success in finding music they enjoy.
  - Collaboration with applied scientists to engineer features used to inject machine learning and streaming science insights into the conversational dialogue flow.
- 2013–2019 **Nuance Communications, Inc., Principal Speech & Natural Language Research Scientist** (Sunnyvale, CA)
- Promoted from Senior to Principal rank in 2017 based on superior performance and contributions to Nuance.
  - Constructed and optimized Nuance embedded and cloud-based ASR & NLU products, focusing on domains for automotive (navigation, music), TV (media content), and mobile devices (telephony, communications).
  - Experimented to quantify the impact of different feature implementations on accuracy and user experience.
  - Deployed ASR & NLU solutions for Samsung, Amazon, Comcast, Deutsche Telekom, DirecTV, Liberty Global, LG, Mercedes Benz, BMW, and Audi.
- 2011–2013 **Voxify, Inc. (acquired by [24]7.ai), Speech Applications Analyst** (Alameda, CA)
- Used large quantities of speech recognition application log data/chat data/audio data (millions of sessions per day) to optimize spoken dialogue system design and maximize transaction success, user satisfaction, and revenue.
  - Designed experiments and A/B tests to quantify success of implementation decisions against well-defined KPIs for regular presentation to customers like United Airlines, GAP, American Express, Fidelity, Victoria's Secret, Avis/Budget Group, Capital One, Ford, Wyndham Hotels, and others.
- 2005–2006 **NASA Ames Research Center, Graduate Student Intern (UARC)** (Mountain View, CA)
- Designed and implemented a statistical NLP classifier for Clarissa, the first spoken dialogue system deployed in outer space.
  - The classifier enables flexible speech-driven navigation of mechanical procedures using content keywords to help astronauts on the International Space Station execute the procedures in zero gravity.
  - Developed syntactic (rule-based) and statistical language models for Regulus, the backbone of Clarissa.

## Education

- 2010–2011 **Postdoc Linguistics**, Cognitive Neuroscience of Language Lab, University of Maryland
- 2004–2010 **Ph.D. Linguistics**, University of California, Santa Cruz
- 2000–2004 **B.A. (First-Class Honours) Linguistics** with German Minor, McGill University, Montréal
- Intermittent **Coursework**, Stanford University, UC Berkeley Extension, City College of San Francisco (continuing education courses)

## Computing Skills

**Programming/Scripting:** Python/Perl/Bash scripting for data processing, automation, and running experiments; basic knowledge of Java/C++

**Natural Language Toolkits:** NLTK, Stanford CoreNLP pipeline, SpaCy, various MT evaluation metric packages

**Data Processing and Analysis:** SQL, Spark, and Excel for data analysis, as well as scripting with structured data, e.g. in XML/CSV/JSON/etc.

**Version Control:** Subversion, Git, Mercurial, Perforce

## Languages

**English:** native

**French, German:** fluent/certified (CEFR Level C2 diploma in each language)

**Palauan:** advanced reading/research knowledge; intermediate listening comprehension and speaking

**Spanish, Japanese, Modern Greek:** university-level coursework

## Awards, Grants, and Honors

- 2018 Spot Bonus Award in recognition of going above and beyond, Nuance Communications
- 2015 Research Collaboration Award (with Padma Ramesh and Dennis Velasco), Nuance Communications CTO Vlad Sejnoha
- 2014 Research Collaboration Award (with Cari Bader and Daniel Reich), Nuance Communications CTO Vlad Sejnoha
- 2009–2011 Doctoral Dissertation Improvement Grant #BCS-0846979, National Science Foundation (\$11,995 research grant to conduct linguistic fieldwork in the Republic of Palau, Micronesia)
- 2005–2009 Jacob K. Javits Fellowship Grant #P170B050015, U.S. Department of Education (all academic expenses paid + annual stipend [≈\$160,000 total] for graduate study at UCSC)
- 2004–2005 University of California Regents Fellowship (all academic expenses + stipend [≈\$30,000] for graduate study at UCSC)
- 2000–2002 Morris Wilson Scholarship, McGill University (merit-based tuition scholarship)
- 2001 German Embassy Prize, German Embassy of Canada and McGill University
- 1998–1999 Congress-Bundestag Scholarship, United States Congress and German Bundestag (all-expense paid study abroad year in Cottbus, Brandenburg, (Former East) Germany)

## Certifications and Memberships

- Diplôme Approfondi de Langue Française (CEFR Level C2 certificate of French fluency), Ministère chargé de l'Éducation nationale, March 2015
- Open Water Diving (Certified), PADI, August 2008
- Advanced Bartending (Certified), San Francisco School of Bartending, July 2006
- Kleines Deutsches Sprachdiplom (CEFR Level C2 certificate of German fluency), Ludwig-Maximilians-Universität München, August 2001
- American Mensa (Member)
- Golden Key International Honour Society (Member)

## Publications and Presentations

### Books

- 2016 Nuger, Justin, *Building Predicates*. Dordrecht: Springer.
- 2009 Alexiadou, Artemis, Jorge Hankamer, Thomas McFadden, Justin Nuger, and Florian Schäfer (eds.), *Advances in Comparative Germanic Syntax*. Amsterdam: John Benjamins.

### Book Chapters and Conference Proceedings Papers

- 2011 Nuger, Justin. "The Syntactic Structure of Palauan Resultatives." In Lauren Friedman (ed.), *Proceedings of the 34th Annual Penn Linguistics Colloquium*, 165–174. Philadelphia: UPenn Working Papers in Linguistics 17.1.
- 2010 Nuger, Justin. "Discontiguous Reduplication in a Local Variety of Malay." In Raphael Mercado, Eric Potsdam, and Lisa Travis (eds.), *Austronesian and Theoretical Linguistics*, 45–64. Amsterdam: John Benjamins.
- 2009 Saba Kirchner, Jesse, Justin Nuger, and Yi Zhang. "An Extensible Crosslinguistic Readability Framework." In *Proceedings of ACL 2009, 2nd Workshop on Building and Using Comparable Corpora*, 11–18. Singapore: ACL and AFNLP.
- 2009 Nuger, Justin. "On Downward-Entailing Existentials and Differential Object Marking in Palauan." In Sandra Chung, Daniel Finer, Ileana Paul, and Eric Potsdam (eds.), *Proceedings of AFLA 16*, 137–151. London: University of Western Ontario, AFLA Proceedings Project.

### Refereed Conference Presentations

- 2019 Hugues-Nuger, Justin. "Optimizing NLU Accuracy in the TV Domain." Poster presented at the 12th Annual Nuance Research Conference, 11 March. Cambridge, Mass.
- 2015 Vadlapudi, Ravikiran, Ekaterina Buyko, Xi Chen, Yi Chu, Justin Nuger, and Anushree Venkatesh. "Classifying the Intents of Fragment Inputs in Natural Language Understanding Systems." Poster presented at the 8th Annual Nuance Research Conference, 18 March. Montréal.
- 2015 Nuger, Justin. "Towards Self-Tuning ASR: Grammar Optimization with Synthetic TTS Audio." Poster presented at the 8th Annual Nuance Research Conference, 16 March. Montréal.
- 2014 Nuger, Justin. "Levels of Abstraction in Custom Pronunciation Generation for Speech Recognition." Poster presented at the 7th Annual Nuance Research Conference, 18 March. Boston.
- 2011 Nuger, Justin. "Definiteness Distinctions in a Language with One Determiner." Paper presented at the 2011 Workshop on Languages with and without Articles, 4 March. Paris: CNRS/Université de Paris-8.

- 2011 Nuger, Justin. "On Idiom Locality and the Architecture of the Grammar." Paper presented at the 47th Annual Meeting of the Chicago Linguistic Society, 8 April. Chicago: University of Chicago.
- 2011 Nuger, Justin. "Discourse Configurability in Palauan: Against a clause-nominalization analysis of the topic construction." Paper presented at the 29th West Coast Conference on Formal Linguistics, 24 April. Tucson: U Arizona.
- 2010 Nuger, Justin. "Implicit Arguments and Unaccusative Syntax." Paper presented at the 17th Annual Meeting of the Austronesian Formal Linguistics Association, 9 May. Stony Brook: Stony Brook University, New York.
- 2009 Nuger, Justin. "The Position of Aspect in the Palauan vP." Paper presented at the 83rd Linguistic Society of America Annual Meeting, 10 January & 4th Conference on Austronesian Languages and Linguistics, 17 June. London: SOAS.
- 2005 Nuger, Justin. "A Semantic Hierarchy for West Germanic Quirky Case." Paper presented at the 11th Germanic Linguistics Annual Conference, 21 April. Davis: University of California.
- 2004 Nuger, Justin. "Case/Possessive Homophony in Tagalog and Its Implications for Scrambling." Paper presented at the 2nd Annual Undergraduate Linguistics Colloquium, 18 April. Cambridge: Harvard University.