Robert Squizzero

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SUMMARY

Creative, goal-oriented quantiative scientist with a passion for making data work for everyone. 10+ years of working with experimental quantitative data, 5+ years of experience with programming and statistical analysis. Seasoned analyst of large and small corpora using sophisticated statistical, computational, & machine learning methods.

COMPETENCIES

Quantitative and qualitative research techniques:
Experiment Design, Surveys, Structured interviews, A/B testing, Discourse analysis, Content analysis, Data processing, cleaning, wrangling, and visualization; Statistical modeling, Generalized linear (mixed) regression, Generalized additive (mixed) regression, ANOVA, MANOVA, SSANOVA, Mahalanobis distance, Exploratory data analysis, Principal component analysis, k-means clustering, t-tests, Chi-squared tests, Wilcoxon tests, Machine learning, Geodesic distance, Speech segmenting, labeling, and analysis

Languages:
First: English; **Advanced**: Italian, Mandarin Chinese;
Research Experience: Fuzhou Chinese, Spanish, Tigrinya;
Basic: French, German, Japanese

Software:
ELAN, Git, Asana, Atlassian Jira, Confluence, R Markdown, FileMaker Pro, MAMP, Microsoft Office Suite, Google Workspace, Audacity, Articulate Assistant Advanced, Command line, Cyberduck, FileZilla, WinSCP, Prolific, Jotform, Survey Monkey, Wenjuan 问卷网, Montreal Forced Aligner, Penn Forced Aligner

Code:
R, Python, Javascript, SQL, MySQL, Praat, Stata, Google App Engine

Libraries:
Tidyverse, renv, MASS, mgcv, itsadug, ssanova, lme4, lmerTest, lmtest, stringi, igraph, psych, phonR, vowels, rPraat

SELECTED EMPLOYMENT

2022 **Phonetic Research Consultant,** Decodis
- *Conducted a machine learning analysis of the acoustic qualities of telephone survey responses to investigate small business owners' needs for digital tools*
- *Completed emotion analysis of over 2000 Spanish-language utterances using k-means clustering and the acoustics of stance framework*
- *Provided actionable suggestions for improvement of linguistic and phonetic data quality, scalability, and interpretation of survey data to a non-technical audience*

2019-2021 **Researcher,** University of Washington Sociolinguistics Laboratory
- *Selected appropriate methodologies and performed exploratory and confirmatory data analysis in R, including visualization, on a 400+ hour speech corpus*
- *Carried out time series analysis using generalized additive mixed modeling (GAMM) and smoothing spline ANOVA; carried out statistical distance calculations using MANOVA, Mahalanobis distance, and geodesic distance*
- *Delivered research presentations requiring explanation of sophisticated statistical concepts to audiences of non-statistician linguists and social scientists*
- *Collaboratively designed and lead 57 hours of recorded in-person sociolinguistic interview experiments, conducted 19 in-person surveys, and recruited hundreds of online survey participants*
- *Developed and executed procedures for segmenting, labeling, annotating, cleaning, and wrangling linguistic data using transcription, forced alignment, and automated and manual acoustic and articulatory analysis tools*

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| 2017-2018 | **Researcher,** University of Washington Sociolinguistics Laboratory |

- *Co-managed a team of linguists and programmers to develop CLOx (https://clox.ling.washington.edu), a user-friendly web and macOS application that generates timestamped machine transcriptions of recorded audio, reducing transcription time by 500-700% as compared to manual transcription*
- *Developed workflow for and executed annotation of over 20 hours of recordings of machine-transcribed recordings and pronunciation data from speakers of racialized varieties of English for machine-produced errors, leading to a peer-reviewed publication on racial bias in automatic speech recognition with suggestions for speech recognition improvement*
- *Aggregated user feedback and made usability improvements to the application, website, and documentation*
- *Wrote reports and delivered presentations and workshops to expert and non-expert audiences and stakeholders*

| 2011-2014 | **Lecturer,** National Taiwan University Dept. of Foreign Languages and Literatures |

- *Taught English language, writing, and presentation skills to students from diverse backgrounds and fields of study*
- *Received 4.5+ (out of 5) ratings consistently from students on course evaluations*
- *Improved teaching quality by managing 13 teaching assistants, including one recipient of the university-wide Outstanding Teaching Assistant award*
- *Collaboratively evaluated and developed online course materials, including assessment metrics, with lecturers, professors, and graduate student assistants*

OTHER RELEVANT EXPERIENCE

| 2017-2022 | **Doctoral dissertation, Sociolinguistic and Phonetic Perception of Second Language Mandarin Chinese** |

- *Designed a series of related experiments using surveys, interviews, power analysis, sampling design, A/B testing, corpus analysis*
- *Processed, cleaned, and wrangled Mandarin speech language data including 6000 vowels and consonants using modern statistical and machine learning techniques, e.g. generalized additive mixed regression, Mahalanobis distance*
- *Conducted exploratory analysis of thousands of attitudinal observation points using principal component analysis, then conducted confirmatory testing using generalized linear regression, t-tests, and Wilcoxon tests*
- *Communicated, in easy-to-understand terms, how research results based on statistical analyses can influence applied language teaching decisions*

EDUCATION - University of Washington, Seattle

2022	**Ph.D in Linguistics.**
2021	**M.A. in Linguistics.**
2010	**M.A. in TESOL** (Teaching English to Speakers of Other Languages)**.**
2009	**B.A. in Linguistics.** Music minor.

SELECTED PUBLICATIONS

Squizzero, R., Horst, M., Wassink, A.B., Panicacci, A., Jensen, M., Moroz, A.K., Conrod, K., and Bender, E.M. (2021). Collecting and using race and ethnicity information in linguistic studies. *University of Washington Working Papers in Linguistics*. http://hdl.handle.net/1773/48570.

Squizzero, R., & Wassink, A.B. (in preparation). A comparison of three methods for identifying dynamic formant tracking errors via outlier detection. Intended submission to *Phonetica*, 2022.

Wassink, A.B. & **Squizzero, R.** (2022, January). Back away from the rest of the West: Ethnic minorities' participation in a Washington English vowel pattern. Paper presented at the Annual Meeting of the American Dialect Society, Washington, DC.