

Zachary Burchill

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Education

PhD + MA in Brain and Cognitive Sciences

Rochester, NY

UNIVERSITY OF ROCHESTER

2014-present

Center for Language Sciences Fellowship

BA in Linguistics, Minor in Computer Science

Philadelphia, PA

UNIVERSITY OF PENNSYLVANIA

2010-2014

Magna cum laude with distinction; Benjamin Franklin Scholar; Vagelos Undergraduate Research Grant recipient

Experience

Remitly

Seattle, WA

MACHINE-LEARNING ENGINEER (INTERNSHIP)

Summer 2019

- Improved the machine-learning model for third-largest remittance corridor (US-India, with a yearly revenue of \$30.6 million)
- Implemented self-directed pricing model all the way from proposal to production
- Proposed and spear-headed new business project with estimated yearly lift of >\$530,000
- Tested and evaluated large number of statistical models (e.g., XGBoost and GAMMs) in Python with pandas and scikit-learn

Human Language Processing Laboratory, University of Rochester

Rochester, NY

GRADUATE RESEARCHER

2014-present

- Research focuses on speech perception, statistics, and online improvements in processing accented speech
- Conducted behavioral experiments over the web via Amazon's Mechanical Turk, and in the lab via eye-tracking
- Developed computational models of word confusability and how speech variability impacts communication
- Analyzed (e.g., with GLMMs and GAMMs) and visualized large datasets with R and Python
- Developed distributed computing framework to run and analyze +10 million statistical models in parallel

Department of Computer Engineering, Purdue University

West Lafayette, IN

FULL-TIME RESEARCH ASSISTANT (PAID)

Summers of 2010-2014

- Developed NLP framework for computer vision output, generating natural sentences to describe real-life video (via HMMs, FSAs)
- Improved human pose detection for naturalistic video
- Worked on rule induction of board games via computer vision

Kelly Writers House / The Christian Association / Heeding God's Call

Philadelphia, PA

WEBMASTER/WEB ASSISTANT FOR THREE MAJOR CAMPUS ORGANIZATIONS

2010-2014

- Kelly Writers House: campus literary/cultural hub; Christian Association: progressive social justice-oriented religious group; Heeding God's Call: interfaith advocate against Philadelphia gun violence
- Designed and maintained websites (front- and back-end)

Relevant Coursework

PREVIOUS Natural Language Processing, Adaptive Language Processing, Quantitative Speech Analysis, Language and Computation, Computational Models of Cognition, General Linear Approaches to Data Analysis, Probabilistic Theories of Cognitive Processing, Statistical Theory/Methods, Mathematical Foundations of Computer Science, Computational Methods in Cognitive Science

Skills

TECHNICAL - MOST EXPERIENCE Python, R, JavaScript, Scheme, UNIX, Java, \LaTeX

TECHNICAL - SOME EXPERIENCE C++, pandas/scikit-learn, SQL, compute clusters, web-scraping, AWS

STATISTICAL Generalized linear mixed models (GLMM), (shape-constrained) generalized additive mixed models (GAMM), Power simulation, Bayesian modeling, XGBoost