

Karie Moorman
Curriculum Vitae
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EMPLOYMENT

May 2021 - Data Scientist, Amazon
Jan 2023

- Teams: Alexa Skills Store, Proactive Intelligence, Monetization
- Decreased NLU model development-to-release time by 50+% (8-12 weeks → 1-4 weeks) through collaborative multi-org initiative to design, implement & optimize automated E2E feature development workflows for both Alexa & AWS.
- Owned reporting of User Perceived Latency (UPL) for org-level Operational Excellence meetings. Identified discrepancies & gaps in existing UPL metrics, datasets, & performance reports. Constructed independent data pipeline, designed & implemented reporting & dashboard workflows. Provided improvement recommendations to engineering teams & to UPL team.
- Spearheaded org-level NLU quality assessment & improvement program, discovering persistent & robust data quality issues producing 30% (+/-5%) fraudulent data, directly impacting high-value business-critical workstreams (e.g., multi-org econometrics), over a 10-month time period.
- Designed, engineered, & maintained privacy-preserving data pipeline. Streamlined data & metrics validation, authored conceptual documentation & runbooks, created & maintained BI dashboards & system-internal performance monitoring workflows using AWS Solutions.
- Leveraged NLU performance pipeline to conduct E2E analysis of domain & feature-specific performance in Alexa, for 20 domains & more than 15 Alexa features.
- Authored detailed analysis documents, presented documents to Product & Engineering teams for review, collaborated with Product & Engineering teams to target gaps & strategically improve Alexa E2E performance.
- Alexa Lab Bar Raiser (NLP, Privacy & Trust).
- New-Hire Mentor (Science track).

Aug 2019 - NLU Engineer, Amazon
May 2021

- Teams: Alexa Skills Store, Proactive Intelligence
- Reduced NLU onboarding time by 90+% (1 month → 1-3 days) by restructuring documentation & workflows, requiring cross-org engagement with NLU developers & educational content curators.
- Coordinated with Product & Engineering teams to launch more than 10 Alexa features, including skill discovery, tutorial & payment support, & voice/data privacy settings.
- Authored feature design documents, regularly worked with within- & cross-organizational partners to coordinate on design specifics & design approval.
- Designed, engineered & tested NLU solutions for 10+ Alexa features. Coordinated with QA teams on internal (within-Amazon) & external (customer-facing) testing strategies, test execution, & post-hoc analysis for use in Go/No-Go decisions.
- Trained & fine-tuned statistical & maintained DNN models across 10 conceptual domains to improve Alexa performance & end-customer experience.
- Trained NLU developers & software engineers across 12 teams in NLU feature development workflows.
- New-Hire Mentor (Ontology track).

Nov 2018 - Computational Linguist, MachineVantage
May 2019

- Optimized NLP systems used to automatically generate context-relevant marketing & branding content for more than 20 multinational consumer goods companies including Nike, Starbucks, Johnson & Johnson, & Unilever.

- Built & maintained datasets used to train & fine-tune NLP conceptual discovery & content generation systems.
- Developed over 80 pitch decks for use by marketing & advertising teams.

Jan 2013 - Analytical Linguist, International Computer Science Institute (ICSI)
May 2015

- IARPA-funded multi-campus program to develop a multilingual metaphor database and automated metaphor identification system ([link](#)).
- Created over 500 verified cognitive semantic frames & 650 verified conceptual metaphors, across more than 20 socially-relevant domains (e.g., poverty, taxation, crime), for use in automatic metaphor detection NLP pipeline ([link](#)).
- Improved success rate of automatic metaphor recognition by 130% for Mexican Spanish, from 15% to 35%.
- Collaborated with partner teams across 3 UC campuses (UCB, UCSD, UC Merced) to create & maintain complex semantics-based hierarchical taxonomies & ontologies for US English & Mexican Spanish ([link](#)).
- Collaborated with partner teams to develop & maintain annotation protocols used to generate large-scale multilingual train/test sets for various automated AI understanding & reasoning tasks.
- Monitored & optimized NLP pipeline performance to improve automated metaphor detection.
- Mentored new research assistants as part of program onboarding.

ACADEMIC RESEARCH

- 2012-2015 MetaNet - Metaphor Database and Extraction System
Automated Frame-Semantic and Metaphor Analysis at Scale
International Computer Science Institute, Berkeley
Supervisors: G. Lakoff, C. Baker, S. Narayanan
- 2012-2015 Karuk Research Unit (KRU)
Corpus Analysis, Transcription, Annotation, Language Documentation
University of California at Berkeley
Supervisors: A. Garrett, L. Mikkelsen

ACADEMIC TALKS AND PUBLICATIONS

- 2021 Lopez, L. D., Moorman, K., Schneider, S., Baker, M. N., & Holbrook, C. (2021). Morality is relative: Anger, disgust, and aggression as contingent responses to sibling versus acquaintance harm. *Emotion*, 21(2), 376–390. <https://doi.org/10.1037/emo0000707>
- 2018 Magnitude of metaphor: its effect on reasoning about immigration
Talk given at the Cultural Evolution Society Conference.
Tempe, Arizona, 22-24 October 2018.
- 2017 Cultural frames of immigration in the United States
Guest lecture, Language of Advertising, UC Berkeley
Berkeley, CA, 24 October, 2017.
- 2017 Magnitude of Metaphor: its effect on reasoning about immigration
Guest lecture, Introduction to Cognitive Science, UC Merced.
Merced, CA, 1 August, 2017.
- 2017 Tsunamis, Aliens, and Butterflies: Force-dynamics and metaphor in US immigration discourse
Talk given at the 14th Meeting of the International Cognitive Linguistics Conference.

Tartu, Estonia, 10-14 July, 2017.

2017 Moorman, K. A Construction Grammar Analysis of *-ara* in Karuk. *Proceedings of 41st Annual Meeting of the Berkeley Linguistics Society (BLS 41)*, February 7-9, 2015.

2015 Uses of Karuk *-ara* in Event Construal
Talk given at the 13th Meeting of the International Cognitive Linguistics Conference.
Newcastle, UK, 20-25 July, 2015.

A Construction Grammar Analysis of *-ara* in Karuk
Talk given at the 41st Annual Meeting of the Berkeley Linguistics Society (BLS).
Berkeley, CA, 7-9 February, 2015.

2014 Nominal and Verbal Uses of *-ara* in Karuk
Talk given at the 12th Conceptual Structure, Discourse and Language (CSDL) Conference.
Santa Barbara, CA, 4-6 November, 2014.

The Polyfunctionality of *-ara*: Analyzing metonymy and metaphor in Karuk
Talk given at CogNetwork. Berkeley, CA, 29 October, 2014.

The Polyfunctionality of *-ara* in Karuk: Its form, meaning, and function
Talk given at CogNetwork, Berkeley, CA, 14 April, 2014.

TEACHING EXPERIENCE

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| Fall 2018 | Graduate Student Instructor COGS001: Introduction to Cognitive Science,
UC Merced Cognitive and Information Sciences Department |
| Spring 2016 | Lecturer, L105/C101: The Mind and Language,
UC Berkeley Cognitive Science Department |
| Summer 2015 | Grader, L105/C101: Language and Mind,
UC Berkeley Linguistics Department |
| | Grader, C147: Language Disorders,
UC Berkeley Linguistics Department |
| Summer 2014 | Grader, C146: Language Acquisition,
UC Berkeley Linguistics Department |
| Summer 2013 | Grader, C146: Language Acquisition,
UC Berkeley Linguistics Department |
| Spring 2013 | Co-facilitator, Construction Grammar DeCal
UC Berkeley Linguistics Department |

FELLOWSHIPS, HONORS AND AWARDS

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| Spring 2017 | Cognitive and Information Sciences Travel Fellowship, UC Merced |
| 2016-2018 | Eugene Cota Robles graduate fellowship, UC Merced |
| Spring 2015 | Departmental Honors, Department of Linguistics, UC Berkeley |

VOLUNTEER ACTIVITIES AND ACADEMIC SERVICE

- Oct 2015 Volunteer Assistant
Presented Karuk online dictionary to conference goers.
California Indian Conference (CIC) 30, Berkeley, CA
- Feb 2015 Volunteer Assistant
Helped with registration of presenters and guests.
Berkeley Linguistics Society (BLS) 41, Berkeley, CA
- Spring 2013 Volunteer Co-Facilitator
Taught a Construction Grammar DeCal course in Spring 2013 semester.
UC Berkeley Linguistics Department, Berkeley, CA
- April 2013 Volunteer Assistant
Helped with registration of presenters and guests as well as cleanup of event.
Workshop on Structure and Constituency in the Languages of the Americas (WSCLA) 18,
Berkeley, CA

EDUCATION

- Fall 2016 - Fall 2019 Ph.D., Cognitive and Information Sciences
University of California, Merced
Graduate Research: Bias, Language, Social Group Dynamics
(Did Not Finish)
- Fall 2011- Spring 2015 B.A. Linguistics (with distinction)
Department of Linguistics
University of California, Berkeley
Senior Thesis: *The Polyfunctionality of -ara in Karuk: its form, meaning, and function*
(Thesis Committee: Eve Sweetser, Andrew Garrett, Line Mikkelsen)

LANGUAGES & SOFTWARE

Spoken: English (native), Spanish (beginner), Karuk (fieldwork)

Programming: Python, R, SQL, HTML5, CSS, JS, Bash (Grep/Sed/Awk), Spark

AWS Solutions (Security: IAM, KMS, VPC; Database: S3, RS, RDS, Athena, Glue, ETL/ELT; Monitor: CloudWatch, CloudTrail, SNS; Cost: Budget), Google BigQuery

Kibana, Tableau, SPSS, Praat, ELAN, Audacity

Experience Using: Amazon Mechanical Turk, TurkPrime, Qualtrics

SKILLS

Natural Language Understanding: Multilingual Text Generation, Extraction, Annotation, Parsing & Classification, NER, Semantic Similarity & Disambiguation, Sentiment & Emotion Analysis, Multimodal Conversation Analysis

Data Mining & Analysis: Correlation, Classification (KNN; SVM), Clustering (K-Means; Agglomerative), Topic Modeling (LDA; TF-IDF), Non-Linear Regression (GLMM; HLM; SEM), Time-Series Analysis, Causal Inference

Data Visualization: R (Markdown; Shiny), Python (Markdown; Jupyter), BI (QuickSight; Tableau; Kibana)

Human Cognition & Behavior Research: Replicable Experiment Design, Rigorous Hypothesis Testing (MTurk, Qualtrics, MatLab, R, SPSS)

Testing Strategies: Development, Validation & Optimization of QA/QC Procedures, Model Performance & Customer Metrics, Reliable Root-Cause Analysis, Interpretable & Scalable Solutions

Database Creation & Management: AWS Solutions (Security: IAM, KMS, VPC; Database: S3, RS, RDS, Athena, Glue, Spark, ETL/ELT; Monitor: CloudWatch, CloudTrail, SNS; Cost: Budget), Google BigQuery