

BENJAMIN (BEN) MA

Cambridge, MA | +1 408 307 3768 | ben.ma@att.net | https://benma.dev

FULL-STACK SOFTWARE ENGINEER

Full-Stack Software Engineer with experience designing, building, and maintaining production-grade web applications. 4 years agile development and machine learning experience across industry and academia.

SKILLS

AWS Solutions Architect (Certified)
Data Processing
Writing and Communication

Backend Engineering
Chaos Engineering
System Design

React.js
Machine Learning
Agile Development

EXPERIENCE

AMAZON ALEXA, INC., Cambridge, MA

2022

Software Development Engineer

Engineering lead for Blitz Hand-Authoring, an Alexa-internal tool for language engineers to create natural language rules guiding Alexa voice interactions.

- Designed system architecture and component interaction model for Blitz Hand-Authoring, including API contracts, NoSQL data storage, AWS Lambda execution environment, and React/Redux front-end, estimated to increase rule authoring speed by 140%.
- Iteratively created Blitz Hand-Authoring front-end UI via hand-crafted Balsamiq wireframes, achieving a unified design approved by Alexa language engineers in the U.S., Europe, and India.
- Performed investigation & audit of high-severity service outage using AWS CloudWatch metrics, logs, and post-mortem interviews, resulting in an org-level report with recommendations to prevent future outages.
- Owned and implemented proposed recommendations from the report by adding metric-based alarms, creating high-fidelity test data, and writing an operational runbook, reducing operational overhead.

DEEP MUSIC, INC., Beijing, China

2022

AI Research Scientist Intern

Researched, designed and built prototype transformer model for simultaneous musical generation of melody and lyrics.

- Adapted mT5 multi-lingual text transformer architecture with custom tokens, callbacks, and loss function to support generation of both text and musical notes.
- Experimented with different transformations and representation formats for in-house music dataset, and wrote Python scripts to efficiently convert between dense and sparse MIDI representations.

USC SIGNAL ANALYSIS & INTERPRETATION LAB (SAIL), Los Angeles, CA

2017 – 2021

Researcher

Formulated research questions, designed experiments, and built machine learning models to forecast and understand human responses to music.

- Led SAIL's music research group investigating characteristic music of major film genres, leading to publication in PLoS ONE, peer-reviewed journal of the Public Library of Science.
- Authored or co-authored five research publications, and presented original work internationally.
- Achieved top-of-leaderboard and received Distinctive Mention at 2020 MediaEval Emotions & Themes in Music Challenge for the task of building a model to recognize emotion tags for musical clips.

AT&T CORPORATION, Los Angeles, CA

2019

Software Engineering Intern

Optimized relational database performance and validation for terabyte-scale DirecTV customer record databases.

- Produced \$36,500 of cost-savings by automating database validation process, using Python & SQL.
- Invented an Augmented Reality Heads-Up-Display (HUD) for first responders and served as product owner on its MVP development team, leading to AT&T applying for a patent on the device.

EDUCATION**TSINGHUA UNIVERSITY, SCHWARZMAN COLLEGE**, Beijing, China**Master of Management Science, Global Affairs, 2022**

- Guffey Family Fellow in Schwarzman Scholars, a one-year master's degree and leadership program founded by Steve Schwarzman, CEO and co-founder of Blackstone Group.
- Conducted automated collection, feature extraction, and correlational analysis of top Chinese and Western popular music, and interviewed music industry insiders, to investigate cross-cultural pop music exchange.

UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles, CA**M.S., Computer Science | B.S., Computer Science | Minor, Music Production, 2021**

- Graduated Summa Cum Laude with Discovery Scholar distinction for Outstanding Research.
- USC Viterbi Engineering Fellowship recipient (top 5% of USC engineering students).
- Studied music production and music industry in Thornton School of Music and Free Artists Matchmakers.

ADDITIONAL INFORMATION

- Founder of DJ Lysosome, interactive music production video channel and mobile event DJ service.
- Captain, Schwarzman College and USC Ultimate Frisbee Clubs.
- Natively fluent in English, conversationally fluent in Mandarin Chinese.