

# PUNYA SHAH

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## EDUCATION

### University of Southern California

M.S. in Computer Science

January 2026-May 2027

### The Pennsylvania State University

B.S. in Computer Science; Minor in Math

August 2019-December 2022

## RESEARCH EXPERIENCE

### Research Assistant

January 2026-Present

Interaction Lab – University of Southern California, Los Angeles, CA

- Developed contrastive learning embeddings to quantify semantic entrainment in de-identified CBT transcripts
- Engineered complementary lexical and syntactic entrainment features to measure therapeutic alliance and engagement
- Applied significance testing across 100+ sessions to identify conversation patterns predicting therapy outcomes
- Diagnosed training loss stagnation as a data-volume problem and expanded the training corpus 4x, resolving convergence

## PROFESSIONAL EXPERIENCE

### Software Development Engineer

September 2023-December 2025

Amazon, Bellevue, WA

- Architected and executed automated fulfillment guardrails for Tier-1 distributed services, driving a 15% increase in automated sortation throughput and 8% improvement in item sortation accuracy
- Implemented and optimized high-throughput Mixed Integer Programming models in Java to automate sub-same-day logistics placement for a business-critical \$1B+ program
- Spearheaded enterprise infrastructure optimizations across core AWS cloud services (EC2, ECS, S3), reducing legacy hardware operational overhead to secure \$600K in annualized cost savings
- Designed a dynamic configuration management platform utilizing AWS AppConfig and Java, decoupling live experiment rollouts from production pipelines to achieve near-instant deployment rollbacks
- Mentored incoming software interns on code quality and standards, directly resulting in full-time return offers

### Full Stack Engineer

February 2023-September 2023

WeAreHousing, State College, PA

- Built signup, login, and a dynamic property upload flow (Nuxt.js, Django, AWS), onboarding 20+ regional property owners

## INTERNSHIP EXPERIENCE

### Software Development Engineer Intern

May 2022-August 2022

Amazon, Bellevue, WA

- Built internal data verification software in Vue.js, Java, and AWS for a Tier-1 first-mile inventory placement service

### Part-Time Web Developer Intern

January 2022-May 2022

Penn State University Libraries, University Park, PA

- Built a Jekyll site hosting Data Curation Network materials for 19 university libraries nationwide (IMLS-funded)

### Business System Analyst Intern

July 2021-November 2021

Penn State University Libraries, University Park, PA

- Automated faculty research data audits using a CRUD process in Ruby, reducing validation time from 1 week to 3 hours

## PROJECTS

### Trade Operations Platform

- Built a full-stack Next.js + Supabase/Postgres platform managing \$20M in trade volume for a scrap-trading firm
- Automated one-click generation of 7 regulated trade documents with role-based access controls

## LEADERSHIP & ACTIVITIES

HackSC: Graduate Student Advisor | LA Hacks – Spring 2026: Mentor

## SKILLS

Python, Java, JavaScript, TypeScript, Ruby, SQL, PyTorch, HuggingFace Transformers, Vue.js, Next.js, Django, AWS, Git, Claude Code