

Tanya G. Roosta

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PROFESSIONAL O Highly motivated, self-starter individual with more than 15 years of work SUMMARY experience in data science, analysis and machine learning in high tech and quantitative finance industries. Detail-oriented team player with strong organizational skills. Ability to handle multiple projects simultaneously with a high degree of accuracy. SKILLS Computer Skills Interpersonal Skills: Proficient in: Conflict Resolution • Python, Java, C, C++, R, Matlab • Team Building • Familiar with: SAS Problem-Solving • SQL, Tableu Project Planning PATENTS Organization Written Communication Self-Directed and innovative WORK HISTORY SENIOR APPLIED SCIENCE MANAGER. AMAZON 06/2019 to Current \cap

Working on providing proactive experiences to the customers, using personalization with generative AI techniques.

Leading a team of scientists, machine learning, and software engineers working on scalable generative AI techniques to increase customer interaction with their Alexa devices through improving their conversational experiences In this role, I devise strategic roadmap for product release, work with various teams to scope requirements, do research and help build the prototype technical solution, and oversee the end-to-end implementation in production.

AI Foundation Model Development:

Successfully built and deployed AI foundation models from design through training to implementation.

High-Impact Applied Research: Conducted cutting-edge applied research, incorporating the latest AI developments into customer experiences.

Technology Stack Utilization: Leveraged diverse technology stack including Pytorch, AWS, HuggingFace, Lightning, and VectorDBs.

Insight Extraction from Data: Utilized advanced technologies to extract meaningful insights from vast volumes of numeric and textual data.

Interpersonal Communication:

Effectively translated complex technical concepts into tangible business goals. Enhanced team collaboration by bridging the gap between technical and business perspectives.

) LECTURER UNIVERSITY OF CALIFORNIA, BERKELEY

07/2022 to CURRENT

Teaching fundamentals of machine learning, GenAI, and Statistics courses

LEAD MACHINE LEARNING SCIENTIST SUMUP ANALYTICS

03/2018 to 05/2019

As a key contributor at this early-stage dynamic Fintech startup, I led impactful research initiatives while simultaneously showcasing my leadership skills. My role encompassed not only the development of robust code and REST APIs, hosted on AWS API Gateway, but also doing cutting-edge research in topic modeling, text summarization, document recommendation, sentiment analysis, and streaming text analytics.

In addition to hands-on technical contributions, I took charge of managing a team of skilled scientists and engineers across the entire technical stack. My leadership ensured seamless collaboration and synchronization, resulting in scalable and reliable feature development that aligned with our organizational objectives.

Furthermore, I actively engaged with prospective clients, demonstrating my ability to understand their unique needs. I played a pivotal role in developing proof-of-concept solutions tailored to address specific client requirements, showcasing my ability to transform research outcomes into practical solutions that meet client expectations.

DIRECTOR OF MACHINE LEARNING MOODY'S ANALYTICS

05/2014 to 03/2018

I spearheaded diverse engagements within the banking and financial sector, assuming dual roles as the quantitative model lead and team manager. I successfully navigated a spectrum of projects, overseeing the development and implementation of quantitative risk measurement products and services.

In my capacity as a team manager, I fostered a collaborative environment, steering a team of professionals toward shared objectives. My leadership

extended to projects encompassing domains, such as credit risk modeling for commercial wholesale portfolios, commercial real estate, residential mortgages, and counterparty credit risk.

In the execution of these projects, I demonstrated the ability to communicate complex quantitative concepts to stakeholders, ensuring a comprehensive understanding across all levels. My interpersonal communication skills played a pivotal role in contributing to the success of engagements and strengthening relationships with clients and stakeholders.

SENIOR QUANTITATIVE ANALYST FEDERAL RESERVE BANK OF SAN FRANCISCO

EDERAL RESERVE BANK OF SAN FRANCISCO In my capacity as the lead quantitative analyst overseeing supervisory exams, I

06/2012 to 04/2014

played a central role in the examination processes of major bank holding companies regulated by the Federal Reserve Bank of San Francisco, including industry leaders, such as Wells Fargo, Union Bank of California, and Zions Bank. Additionally, I actively contributed to critical system-wide initiatives at the Federal Reserve, including the Comprehensive Capital Analysis and Review (CCAR) and BASEL II quantification exams, working with investment institutions such as Morgan Stanley and Goldman Sachs.

My analytical skills were prominently featured in my responsibilities, which extended to conducting empirical research in areas, such as credit risk modeling, systematic risk indicators utilizing Credit Default Swap (CDS) spreads, and Commercial Real Estate (CRE) modeling and analysis. Employing a comprehensive research methodology, I gathered data from diverse sources, including Bloomberg, RCA, FRED, FR Y-9C, and 14A bank schedules. My proficiency in data cleaning processes and the application of sophisticated time series models allowed me to extract actionable insights from complex datasets.

SENIOR QUANTITATIVE RESEARCHER ALLIANZ GLOBAL INVESTOR CAPITALS

10/2010 to 05/2012

I was responsible for the development of a statistical risk model for emerging markets, which allowed me to showcase my strong quantitative and analytical skills by employing techniques, such as principal component analysis (PCA). This work involved a meticulous approach to data analysis, enabling the creation of a robust model to assess and manage risks associated with emerging market dynamics.

Furthermore, I crafted a strategy centered around the minimum variance portfolio. Rigorous testing of this strategy culminated in the establishment of the AllianzGI U.S Managed Volatility Fund (NGWAX). My quantitative skills played a key role in designing and implementing this strategy, contributing to the fund's inception and success in navigating market volatility effectively.

SOFTWARE ENGINEER CISCO SYSTEMS

08/2008 to 02/2010

I was responsible for the development of software in C language, specifically for the Group Encrypted Transport Virtual Private Network (GETVPN) solution. This project showcased my proficiency in programming and my ability to navigate complex coding tasks within a robust technology stack.

In addition, I actively collaborated on crafting the functional specification document for the SmartGrid project. This endeavor required not only a deep understanding of project requirements but also the application of my technical skills to articulate complex functionalities. These experiences underscore my capability to leverage diverse technology stacks and contribute effectively to multifaceted software development initiatives.

EDUCATION

Ph.D. | Electrical Engineering and Computer2002-2008University of California, Berkeley, CADissertation: Using Statistical Methods for Anomaly and Attack Detection inWireless Sensor Networks. Advisor: Prof. Shankar Sastry

 Masters | Statistics
 University of California, Berkeley, CA
 <u>Thesis</u>: Convergence Analysis of Reweighted Sum-Product Algorithm. Advisor: Martin Weignwright

Masters | Electrical Engineering and Computer Science University of California, Berkeley, CA Thesis: Power aware Routing in Wireless Ad-hoc Networks

Masters | Financial Engineering Haas School of Business

Bachelors | Electrical Engineering and Computer Science
 University of California, Berkeley, CA

PUBLICATIONS

AuditLLM: A Tool for Auditing Large Language Models Using
Multiprobe Approach. The 33rd ACM International Conference on Information
and Knowledge Management (CIKM), 2024.
ClaimVer: Explainable Claim-Level Verification and Evidence Attribution of Text
Through Knowledge Graphs. EMNLP 2024.

What is Lost in Knowledge Distillation. NeurIPS 2023 (ENSLP) Once-for-All Federated Learning: Learning from and Deploying to Heterogeneous Clients, FL4Data-Mining, 2023 Quantifying Catastrophic Forgetting in Continual Federated Learning **ICASSP**, 2023 Learning from Federated Learning in Real World. ICASSP, 2022 Training Mixed-Domain Translation Models via Federated Learning. NAACL, 2022 PerFedSI: A Framework for Personalized Federated Learning with Side Information. FL NeurIPS, 2022. Communication-Efficient Federated Learning for Neural Machine Translation. NeurIPS 2021 (ENSLP) Convergence Analysis of Reweighted Sum-Product Algorithms International Conference on Acoustic, Speech, and Signal Processing 2007 (best student award) For more of the older publication list, please see: http://www.frbsf.org/economicresearch/economists/tanya-roosta/ PATENTS Dynamic Group Creation for Managed Key Servers. Granted: 6/2014 \bigcirc Sender-specific Counter-Based Anti-Replay for Multicast Traffic. Granted: 6/2011 Protection of Control Plane Traffic against Replayed and Delayed Packet Attack. Granted: 2/2014 Updating Machine Learning Models Across Devices. Filed, Number P75341-**US01** Updating Machine Learning Models. Filed, Number P75359-US01 AWARDS Best student paper award, the International Conference on Acoustic, Speech and Signal Processing, 2007 National Science Foundation Graduate Student Research Fellowship