TR

Tanya G. Roosta

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LinkedIn Profile

PROFESSIONAL SUMMARY

Highly motivated, self-starter individual with more than 15 years of work experience in data science, analytics 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:

- Proficient in:
  Python, Java, C, C++, R, Matlab
- Familiar with: SAS
- SQL, Tableu

Interpersonal Skills:

- Conflict Resolution
- Team Building
- Problem-Solving
- Project Planning
- Organization
- Self-Directed and innovative

WORK HISTORY

SENIOR APPLIED SCIENTIST, AMAZON

06/2019 to Current

Leading a team of scientists, machine learning engineers, and software engineers working on scalable generative AI techniques. In this role, I devise strategic roadmap for product release, work with various teams to scope requirements, do research and build the prototype technical solution, and oversee the end-to-end implementation in production. Specifically, I have:

Collaborated with a diverse team of scientists, machine learning engineers, software engineers, and product managers.
Facilitate seamless communication, resulting in 20% reduction in project development timelines.

Successfully built and deployed AI foundation models from design through training to implementation.
Improved model efficiency, leading to a 15% increase in processing speed and 10% reduction in computational costs.

Conducted cutting-edge applied research, incorporating the latest AI developments into customer experiences.
Implemented innovative AI features that contributed to 30% increase in customer engagement.

Leveraged diverse technology stack including Pytorch, AWS, HuggingFace, Pytorch Lightning, and VectorDBs.

Optimized model performance, resulting in 25% improvement in accuracy and 20% reduction in resource utilization.

Utilized advanced technologies to extract meaningful insights from vast volumes of numeric and textual data.
Implemented data-driven strategies that led to a 25% improvement in decision-making processes.

Effectively translated complex technical concepts into tangible business goals.
Enhanced team collaboration by bridging the gap between technical and business perspectives, resulting in 15% increase in project alignment with organizational objectives.

LECTURER
07/2022 to CURRENT

UNIVERSITY OF CALIFORNIA, BERKELEY

Teaching courses in the Masters of Data Science program. Specifically:

- Fundamentals of Machine Learning
- Generative AI
- Introduction to Statistical Methods

LEAD MACHINE LEARNING SCIENTIST
03/2018 to 05/2019

SUMUP ANALYTICS

As a key contributor at Analytics, a dynamic Fintech startup, I led impactful research initiatives while simultaneously showcasing my leadership prowess. My role encompassed not only the development of robust code and REST APIs, hosted on AWS API Gateway, but also delved into the realms of 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 both my technical acumen and strategic thinking in transforming research outcomes into practical solutions that meet client expectations.

DIRECTOR OF MACHINE LEARNING
05/2014 to 03/2018

MOODY'S ANALYTICS

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

In my capacity as an engagement manager, I fostered a collaborative environment, steering a team of professionals toward shared objectives. My leadership extended to projects encompassing intricate 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 a unique ability to communicate complex quantitative concepts to stakeholders, ensuring a comprehensive understanding across all levels. My interpersonal communication skills played a pivotal role in bridging the gap between technical intricacies and strategic objectives, contributing to the success of engagements and strengthening relationships with clients and stakeholders.

SENIOR QUANTITATIVE ANALYST
06/2012 to 04/2014

FEDERAL RESERVE BANK OF SAN FRANCISCO

In my capacity as the lead quantitative analyst overseeing supervisory exams, I 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.

My analytical skills were prominently featured in my responsibilities, which extended to conducting empirical research in pivotal 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 meticulously 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
10/2010 to 05/2012

ALLIANZ GLOBAL INVESTOR CAPITALS

Entrusted with spearheading the development of a statistical risk model for emerging markets, I showcased my strong quantitative and analytical skills by employing advanced techniques such as principal component analysis (PCA). This endeavor involved a meticulous approach to data analysis, enabling the creation of a robust model to assess and manage risks associated with emerging market dynamics.

Demonstrating my analytical skills, I further 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 pivotal role in designing and implementing this strategy, contributing to the fund's inception and success in navigating market volatility effectively.

SOFTWARE ENGINEER
08/2008 to 02/2010

CISCO SYSTEMS

Utilizing my coding expertise, I spearheaded 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 intricate 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 Computer
2002-2008

University of California, Berkeley, CA

Dissertation: Using Statistical Methods for Anomaly and Attack Detection in Wireless Sensor Networks. Advisor: Prof. Shankar Sastry

Masters | Statistics

University of California, Berkeley, CA

Thesis: 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
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
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/economic-research/economists/tanya-roosta/

PATENTS

Dynamic Group Creation for Managed Key Servers. Granted: 6/2014
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
Traning Techniques for Language Models. Filed, Number P86679-US01

AWARDS

Best student paper award, the International Conference on Acoustic, Speech and Signal Processing, 2007
National Science Foundation Graduate Student Research Fellowship