Tomas Ruiz | Resume

Research Assistant

Status: Research Assistant at LMU Munich

Field: Machine Learning, Multi-modal AI

Techs: Python, R, C#, Java, AWS, Django, FastAPI, PostgreSQL, Hadoop, Spark

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Summary

Research assistant at the LMU Munich at the intersection of Machine Learning and Social Media, particularly on multi-modal ML. In previous jobs, I worked as a software engineer in different companies and start-ups.

Experience

Senior Software Engineer - Allianz Global Investors - Munich, Germany · 03/2023 - 05/2024

* [Python, C#]: I wrote C# core libraries to simulate the performance of trading strategies for options and derivatives, as well as Python packages to orchestrate scenario simulations, interact with diverse data systems over REST, with SQL Databases, etc. I collaborated closely with quantitative researchers and financial engineers to ship our product. I learned about financial mathematics, portfolio management and risk modeling.

Software Engineer - Preisenergie GmbH - Munich, Germany · 03/2021 - 02/2023

* [Python, R, REST, PostgreSQL, Django, FastAPI, DDD, TDD]: Designed and built RESTful applications with Django and FastAPI to calculate contract prices for existing utility customers. Rearchitected and refactored a large untested legacy codebase towards a Domain-Driven-Design based on R packages with a clear separation of concerns. Designed, implemented and tested a price optimization algorithm using Quadratic Programming with 100k variables. Improved expected CLV over the existing algorithm by 20% on average. Extended a web application to manage and analyze data on energy contracts. Translated the product roadmap into a system design, onboarded new developers, performed 1on1s, code reviews and retrospective meetings.

Software Engineering Intern - Core Machine Learning - Amazon - Berlin, Germany · 09/2017 - 02/2018

* [Java, AWS]: Wrote a tool to benchmark cutting-edge Multiarmed-Bandits models for product recommendation. I released it on AWS, so that all internal development teams in Amazon and AWS could asses the potential revenue increases based on their own datasets.

Bachelor's Thesis - BMW Group - Munich, Germany · 03/2017 - 08/2017

* [Python, Spark, Hadoop, Tableau]: Evaluated the query latency, throughput, and DB consistency of an application that monitored the engine manufacturing process.

Education

Research Assistant - Ludwig Maximilian University of Munich · 06/2024 - Present

* Researching on the intersection of machine learning and computational social science. In my project, I apply large multi-modal models (VLM) to understand and classify content from social media (videos, images, audio, and text).

Master of Science - Computer Science - Technical University of Munich · 04/2018 - 02/2021

* My thesis was on the topic of Reinforcement Learning applied to robotics, and learning useful skills with weak supervision. I took courses such as Machine Learning, Deep Learning, Convex Optimization, and more.

Bachelor of Science - Engineering Science - Technical University of Munich · 09/2013 - 08/2017

* My thesis was with BMW Group, where I worked with a Hadoop cluster and evaluated its query throughput and latency on challenging database queries. I took courses in computer science such as Algorithms and Data Structures, Databases, etc. And also classic engineering courses such as Partial Differential Equations, Thermodynamics, etc.