

Zach Tekker

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Experience

CTO & Co-founder

TransInstant

Palo Alto, CA, USA

02/2022 - Current

- Co-founder and CTO at TransInstant, leading the innovation in AI-driven communication technology to eliminate language barriers, enabling seamless cross-lingual conversations. Pioneered the development of real-time talking head generation systems, integrating advanced speech recognition, translation, and synthesis technologies into virtual meeting platforms, ensuring an accurate representation of nuances, tone, and intent across languages, and setting a new standard for global dialogue and interaction since 2022.

Applied Research Group Manager

Government of Turkey

Ankara, Turkey

04/2018 – 01/2022

Digital Transformation Unit

- Developed and implemented a pioneering non-hardhat-use detection system using Faster R-CNN, achieving 95.7% precision and 94.9% recall across diverse construction sites. This system, trained on over 150,000 far-field surveillance video frames from 34 sites, significantly enhances safety monitoring by automatically identifying workers without hardhats, improving on-site safety protocols, and contributing to real-time monitoring advancements.
- Initiated and led the "Turkish Brain Project" to integrate AI in analyzing over 15 million annual MRI scans across Turkey, successfully developing and deploying AI models that improved diagnostic accuracy for brain anomalies and streamlined physician workflows, resulting in faster patient intervention and national healthcare system enhancement.
- Spearheaded the "[Digital Eye Project](#)" delivering an AI-assisted mammography analysis tool that increased diagnostic efficiency by 38%, significantly reducing radiologist workload and improving early breast cancer detection in Turkey, thereby aiming to decrease mortality rates and optimize the prioritization of high-risk cases. (Digital-eye)
- Initiated and led an open-source traffic data project, establishing a robust infrastructure for secure data acquisition from municipalities. Utilized TensorFlow and OpenCV for real-time anonymization by blurring vehicle plates, developed an advanced vehicle counting and classification model, and democratized the processed data, encouraging contributions from the research community for enhanced traffic demand forecasting.

Financial Investments Unit

- Led a predictive analysis project utilizing multiple linear regression to model net sales of Turkish startups, achieving an ~83% explanatory power by incorporating key variables, and guiding strategic incentive mechanism changes.
- Successfully executed a sentiment analysis project targeting cyberbullying within the e-school chat platform, leading to the development of an automated incident reporting system that directly notifies students' teachers. Resulted in a remarkable 68% reduction in reported cyberbullying incidents, enhancing the online learning environment's safety and well-being.
- Directed the development of a Knowledge Graph (KG) for the Foreign Direct Investment (FDI) ecosystem, encompassing entity identification, data sourcing from global databases and news, and preprocessing for analysis. Utilized NER and machine learning for precise entity and relationship extraction, employing Neo4j for graph construction and enabling dynamic insights into FDI trends, key players, and incentives, thereby facilitating strategic decision-making and policy analysis on a global scale.

Senior ML/Data Engineer

Markafoni (acquired by Naspers)

Istanbul, Turkey

06/2016 - 03/2018

- Contributed to the development of a retailer recommendation system using collaborative filtering and matrix factorization, enhancing retail customer satisfaction by crafting personalized shopping experiences and increasing it by 17%.
- Engineered and deployed a high-throughput data pipeline using Spark on AWS EMR, processing and transforming 32TB of daily data from S3 to Redshift, including the development of custom transformations for nested JSON, significantly enhancing data accessibility for analytics and reporting.
- Developed and implemented a Python API-based automation framework for updating millions of product attributes within seconds in the product catalog, utilizing parallel processing and asynchronous operations, improving the efficiency of information management, and facilitating real-time catalog updates.
- Designed, built, and managed a petabyte-scale Redshift data warehouse architecture, incorporating AWS cloud solutions to support diverse reporting needs, and led the creation of scalable ETL backends for Tableau dashboards, empowering various functional units with actionable insights and driving data-driven decision-making.

Senior Data Scientist

YDA Group

Istanbul, Turkey

09/2012 - 05/2016

- Led the development of an advanced cost anomaly detection system for construction bid analysis using machine learning techniques (k-means clustering, DBSCAN). This initiative identified outlier bids, enabling more strategic procurement decisions and reducing the risk of overpayment by 38%.
- Directed the creation of microeconomic forecasting models, utilizing ARIMA, SARIMA, and Prophet, to refine medical service pricing. Achieved a 12% increase in cost efficiency and a 10% reduction in pricing discrepancies, enhancing financial performance.
- Led the creation of a financial sustainability toolkit for healthcare investments, integrating deterministic and time-series analyses to proactively mitigate risks from currency depreciation, culminating in strategic hedging solutions.

Data Scientist

- Designed and implemented a regression model with 14 variables to accurately estimate highway tenders, significantly reducing budget forecast deviations to a maximum of 20%. This model enhanced financial planning and resource allocation efficiency.
- Pioneered a traffic data analysis model utilizing Monte Carlo Simulation, marking a first in the field. This model facilitated the valuation of risks and guarantees, optimizing guarantee levels and operation durations for infrastructure projects.

Data Analyst

Garanti CPA

Ankara, Turkey

07/2010 - 08/2012

- Conducted in-depth analyses of financial statements over time, identifying key trends, detecting anomalies, and pinpointing areas necessitating further investigation to support strategic decision-making and operational improvements.

Education

MS

- [Data Science – Generative AI](#)

University of the Pacific

San Francisco, CA, USA,

08/2022 - 05/2024

BS

- [Engineering Science](#)

Middle East Technical University (METU)

Ankara, Turkey

09/2006 - 06/2010