ZELONG (ERIC) ZHANG 張澤龍

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PhD level data scientist with 3+ years of industry experience in data analytics and machine learning. Hackathon winner and storyteller, passionate about finding actionable insights via x-team collaboration.

SKILLS

Programming: Python (Jupyter Notebook, PyCharm), SQL, Git, Bash, HTML, CSS

Technical: Machine Learning, Deep Learning, Computer Vision, Time Series, Geospatial, Explainable AI, UI

EXPERIENCE

Independent Researcher (Yantai Xianhua Techonlogy), remote, China — Jun 2025 – Present

- Accelerating novel materials development by collaboration and scientific computing
  - Develop DFT and MD methods to predict material properties antenna and optical switch
  - Collaborate with experimental team to identify key features crucial to signal transmission
  - Automate computation deployment and result analysis through Python and Bash

AI Data Scientist, Optum (UnitedHealth Group), remote, USA — Jan 2021 – April 2024

Applied data analytics and machine learning to improve the efficiency and efficacy of US healthcare system

- Project 1: Analyzed dental X-ray images for oral health risk evaluation
  - Became the data science team's subject matter expert (SME) in radiography through self-study
  - Acted as the point of contact to communicate with radiologists to help team define use cases
  - Conducted market analysis and opposition research to assist product team on product requirements
  - Won the 1st place in Change Healthcare CodeFest 2021 (hackathon) as the team presenter
  - Delivered presentations and wrote white papers to improve organizational data literacy
- Project 2: Analyzed historical data to forecast the denial risk of healthcare claims
  - Performed exploratory data analysis and feature engineering to find and amplify the signals
  - Applied rule-based approach by combining business logic and data analytics to forecast denial risk
- Project 3: Improved identity matching with AI for members with multiple healthcare plans
  - Cleaned and standardized data of member identity (e.g. date, address) across different data sources
  - Applied string similarity algorithms and achieved 50% increment on recall over rule-based approach
- Project 4: Predicted delivery date of payment explanation to reduce the call volume of tech support
  - Identified historical trends of delivery time and provide estimations tailored for stakeholders
  - Cooperated with engineering and operations teams to turn the prototype into a product

Fellow, Insight Data Science Fellowship, San Francisco, CA, USA — Sep 2020 – Dec 2020

- Developed a NLP model to forecast user churn in THE RUN EXPERIENCE ™, a fitness app
  - Fined-tuned NLP BERT model by hand-labelling to extract text sentiment
  - Provided a 4-week time window for retention team to engage users at high risk of churning

Reviewer, NeurIPS, Machine Learning and the Physical Sciences — 2019 – 2020

Trainee, Deep Learning Summer School, Lawrence Berkeley National Laboratory, USA — Jul 2019

Patent: AI-based Automated Dental Claim Fraud Detection Framework (USPTO #18/400,276) — 2023

EDUCATION

Ph. D. in Computational Geochemistry, Louisiana State University, LA, USA — Sep 2020

M. Sc. in Geochemistry, Stony Brook University, NY, USA — May 2014

B. Sc. in Geochemistry, China University of Geosciences, Wuhan, China — Jul 2010

MAJOR AWARDS

Hackathon winner: Change Healthcare CodeFest 2021 and 2022, respectively — 2021 – 2022

"Best Writing Award" & "People's Choice Award" Video Contest by US Department of Energy — 2019

PATENTS

Methods, Systems, And Computer Program Products For Flagging Dental Claims For Further Scrutiny Based On Processing Of Dental Clinical Images And Periodontal Charts Using Multiple Artificial Intelligence (AI) Models (US20250217893, pending)

Artificial Intelligence (AI) Assisted Decision Support System for Adjudicating Dental Claims and Related Methods and Computer Program Products (USPTO #18/400,276, pending)

一类低温低粘度液晶组合物的制备与用途 （CN200910273196，issued）

二氢茚环联苯类液晶组合物及其应用（CN2023114757514，pending）

二氢茚环联苯类液晶化合物及其制备方法和应用（CN2023114757567，pending）

dl-(±)-β-甲基戊基三联苯类液晶组合物及其应用（CN2023114757660，pending）

dl-(±)-β-甲基戊基三联苯类液晶化合物及其制备方法和应用（CN2023114757707，pending）

异硫氰基反式环己基联苯类液晶组合物及其应用（CN2023114857048，pending）

异硫氰基反式环己基联苯类液晶化合物及其制备方法和应用（CN2023114856967，pending）

PUBLICATIONS

Zhang, Z., Stephens, A., & Wang, J. (2024). Entropic control on the desorption of oil molecular droplets in water from kerogen surface. *Frontiers in Earth Science*, 12, 1434431.

Wang, J., Ghosh, D. B., & **Zhang, Z**. (2023) Computational materials design for ceramic nuclear waste forms using machine learning, First-principles calculations, and kinetics rate theory. *Materials, 16*(14), 4985.

Mohanty, C., Guo, X., Kaya, H., Gin, S., Yang, K., **Zhang, Z.**, Kim, S., Lian, J., Wang, J., & Frankel, G. (2022) Long-term interactive corrosion between International Simple Glass and stainless steel. *npj Materials Degradation*, *6*(1), 50.

Lu, J., Qu, Y., Yan, D., Zhang, Z.*, Guan, J., & **Zhang, Z**.* (2021) Synthesis, Characterisation, and Effects of Molecular Structure on Phase Behaviour of 4-Chloro-1,3-Diazobenzene Bent-Core Liquid Crystals with High Photosensitivity. *Liquid Crystals, 49*(4), 442-455.

Zhang, Z.*, Liu, H., & Wang, J. (2020). Energetics of Interfacial Interactions of Hydrocarbon Fluids with Kerogen and Calcite using Molecular Modeling. *Energy & Fuels*. *34* (4), 4251-4259

Zhang, Z.*, Gustin, L., Xie, W., Lian, J., Valsaraj, K. T., & Wang, J. (2019). Effect of solution chemistry on the iodine release from iodoapatite in aqueous environments. *Journal of Nuclear Materials, 525*, 161-170

Zhang, Z., Ebert, W. L., Yao, T., Lian, J., Valsaraj, K. T., & Wang, J.* (2019). Chemical durability and dissolution kinetics of iodoapatite in aqueous solutions. *ACS Earth and Space Chemistry*, *3* (3), 452-462

Zhang, Z., Heath, A., Valsaraj, K. T., Ebert, W. L., Yao, T., Lian, J., & Wang, J.* (2018) Mechanism of iodine release from iodoapatite in aqueous solution *RSC advances*, *8*(8), 3951-3957.

Yao, G., **Zhang, Z.**, & Wang, J.* (2017). Beta transmutations in apatites with ferric iron as an electron acceptor–implication for nuclear waste form development. *Physical Chemistry Chemical Physics*, *19*(37), 25487-25497.

Phillips, B. L.*, **Zhang, Z.**, Kubista, L., Frisia, S., & Borsato, A. (2016). NMR spectroscopic study of organic phosphate esters coprecipitated with calcite. *Geochimica et Cosmochimica Acta*, *183*, 46-62.

Zhang, Z., Deng, M., Zhang, Z.*, Wei, B., & Xuan, L. Study on the synthesis of difluorooxymethylene alkybenzene and the properties of low temperature viscosity. *Digest of Technical Paper*, ASID' 09, (2009)190-1