

Xin Zhao

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Data Scientist

[LinkedIn](#) | [Github](#)

Summary

Data scientist skilled in implementing machine learning to solve business problems. Experienced with big data processing, modeling, interpretation, and project management.

Skills

Computer skills: Numpy, Pandas, Scikit_learn, Seaborn, Matplotlib, Python, Linux, and SQL.

Data science: Feature engineering, Dimensionality reduction, Supervised/Unsupervised learning, NLP, and Deep learning.

Projects

Lithofacies classification using machine learning: [Link](#)

- Implemented supervised learning algorithms for rock facies classification
- Designed a T-test flow to evaluate the prediction performance of supervised learning algorithms
- Tech: T-test, support vector machine, gradient boosting, random forest, and KNN

Shill bidding detection on eBay: [link](#)

- Implemented unsupervised clustering to group auction records on eBay
- Created a “voting” algorithm followed by supervised classification to identify 6 % shill bidding from all auctions
- Tech: PCA, TSNE, UMAP, KMeans, agglomerative clustering, and Gaussian mixture modeling

NLP on scientific articles for information retrieval: [link](#), [web-APP](#)

- Pre-processed documents containing titles and abstracts, and created a vector space model
- Retrieved information based on vector similarity and built a web query APP
- Tech: spacy, TF-IDF, and word2vec

Experience

CGG

Houston, TX

Data Scientist / Geophysicist

11/2011 - Current

- Managed the high-quality and on-time completion of data processing and modeling project in offshore Trinidad.
- Drove the development of more reliable modeling workflows leading to highly improved 3D reservoir imaging.
- Organized workshops gaining insight into data acquired by up-to-date techniques.
- Led the production of highly reconstructed data and 3D subsurface imaging in 10+ projects.
- Incorporated researches on data anomaly detection and target feature picking using neural network algorithms.

MICHIGAN TECHNOLOGICAL UNIVERSITY

Houghton, MI

Post-Doctoral Associate

09/2009 – 05/2011

- Acquired the diffraction data of microstructures inside the memory alloy using the high energy synchrotron beam.
- Identified the key factor degrading the performance of the memory alloy using computational simulation.

THE HONG KONG POLYTECHNIC UNIVERSITY

Hong Kong, China PR

Research Assistant Scientist

03/2005 – 06/2006

- Acquired image data of piezoelectric microstructures in the nanometer scale.
- Implemented linear regression to obtain the optimal features of piezoelectric microstructures for device applications.

Education

THINKFUL

Certificate in Data Science

01/2021

- Enrolled intensive data science programs focusing on Python, Pandas, statistical analysis, and supervised/unsupervised machine learning.
- Collaborated every week with a senior data scientist to learn industry best practices.

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Ph.D. in Materials Science and Engineering

Blacksburg, VA

07/2009

- Dissertation: Electropolishing of Niobium in Sulfuric Acid-Methanol Electrolytes: Development of Hydrofluoric Acid-Free Electrolytes.

THE HONG KONG POLYTECHNIC UNIVERSITY

M.Phil. in Applied Physics

Hong Kong, China PR

10/2004

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF CHINA

B.E. in Manufacturing and Design Automation of Machinery

Hefei, Anhui, China PR

07/2002

Publications

- FWI-driven orthorhombic modeling with OBS data for reservoir imaging offshore Trinidad G. Shao, X. Zhao, Q. Tong, and R. Huang, CGG; Dale Baptiste, Li Jiang, and Bertram Nolte, BP: 85th (2020) Annual International Meeting, SEG, Expanded Abstracts, 745–749.
- Improving Sub-Messinian Images in the Nile Delta Using FWI and Least-Squares Q Migration C. Chen, H. Gao, X. Zhao, Z. Wang, J. Mei, M.A. Benson, B. Turner, and W. Rietveld, Conference Proceedings, 82nd EAGE Annual Conference & Exhibition Workshop Programme, Dec 2020, Volume 2020, p.1 – 5.
- Sulfuric acid-methanol electrolytes as an alternative to sulfuric hydrofluoric acid mixtures for electropolishing of niobium , X. Zhao, S. Corcoran, and M. Kelley, Journal of Applied Electrochemistry, 41, 633 (2011)
- Enhancement of multiferroic properties of Pb(Fe_{1/2}Nb_{1/2})O₃ thin films on SrRuO₃ buffered SrTiO₃ substrates, L. Yan, X. Zhao, J. Li, and D. Viehland, Applied Physics Letters, 94, 192903 (2009)
- Study of domain boundary polarization in (111)-cut [Pb(Mg_{1/3}Nb_{2/3})O₃](0.7)(PbTiO₃)(0.3) single crystal by piezoresponse force microscopy, K. Wong, X. Zhao, J. Dai, and C. Choy, Applied Physics Letters, 89, 092906 (2006)
- Relaxor ferroelectric characteristics and temperature-dependent domain structure study in (110)-cut (PbMg_{1/3}Nb_{2/3})O₃0.75(PbTiO₃)0.25 (PMN-25PT) single crystal, X. Zhao, J. Dai, J. Wang, H. Chan, C. Choy, X. Wan, and H. Luo, Physical Review B, 72, 064114 (2005)
- Domain structure and evolution in (PbMg_{1/3}Nb_{2/3})O₃0.75(PbTiO₃)0.25 single crystal studied by temperature-dependent piezoresponse force microscopy, X. Zhao, J. Dai, J. Wang, H. Chan, C. Choy, X. Wan, and H. Luo, Journal of Applied Physics, 97, 094107 (2005)
- Characterization of 90 o domain structure and polarization switching in Pb(Zr_{0.4}Ti_{0.6})O₃ film by piezoresponse microscope, X. Zhao, J. Dai, X. Tang, J. Wang, H. Chan, and C. Choy, Applied Physics A, 81, 997 (2005)
- Synthesis and ferroelectric properties of multiferroic BiFeO₃ nanotube arrays, X. Zhang, C. Lai, X. Zhao, D. Wang, and J. Dai, Applied Physics Letters, 87, 143102 (2005)
- Study of local piezo-properties for europium doped lead zirconate titanate thin films by piezoresponse scanning probe microscope, X. Zhao, J. Dai, J. Wang, H. Chan, and C. Choy, Integrated Ferroelectrics, 68, 199 (2004)
- The synthesis and piezoresponse of highly ordered Pb(Zr_{0.53}Ti_{0.47})O₃ nanowire arrays, X. Zhang, X. Zhao, C. Lai, J. Wang, X. Tang, and J. Dai, Applied Physics Letters, 85, 4190 (2004)