**Xin Zhao Data Scientist**

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## **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](https://github.com/zhaoxin1124ds/Lithofacies-classification-using-machine-learning.git)

* 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](https://github.com/zhaoxin1124ds/Shill-bidding-detection-)

* 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](https://github.com/zhaoxin1124ds/NLP-on-scientific-articles-for-information-retrieval), [web-APP](https://scientific-articles-search.anvil.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.
* Droved 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** 01/2021

***Certificate in Data Science***

* 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*** 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*** 10/2004

**UNIVERSITY OF SCIENCE AND TECHNOLOGY OF CHINA**

***B.E. in Manufacturing and Design Automation of Machinery***

## **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 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(Fe1/2Nb1/2)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(Mg1/3Nb2/3)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 (PbMg1/3Nb2/3O3)0.75(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 (PbMg1/3Nb2/3O3)0.75(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(Zr0.4Ti0.6)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(Zr0.53Ti0.47)O3 nanowire arrays, X. Zhang, X. Zhao, C. Lai, J. Wang, X. Tang, and J. Dai, Applied Physics Letters, 85, 4190 (2004)