Xiaolong Wei

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Education

2018–Present	**Ph.D in Geophysics**, University of Houston, Houston, USA
2015–2018	**M.S. in Geology**, Northwest University, Xi'an, China
2011–2015	**B.S. in Geophysics**, China University of Geosciences, Beijing, China

Research Interests

- Geophysical inverse problems for multiple data sets (e.g., gravity, gravity gradiometry and magnetic)
- Structural similarity constraint joint inversion
- Uncertainty analysis in geophysical separate/joint inversions in both deterministic and stochastic frameworks
- Geology differentiation models
- Machine/deep learning algorithms applied to geophysical data interpretations

Awards & Honors

2021	Outstanding Academic Achievement, University of Houston, Houston, USA
2021	Best Poster in the Mining Sessions at the 2020 SEG Annual Meeting
2020	Outstanding Academic Achievement, University of Houston, Houston, USA
2018	First Prize Scholarship, Northwest University, Xi'an, China
2017	First Prize Scholarship, Northwest University, Xi'an, China
2016	First Prize Scholarship, Northwest University, Xi'an, China
2015	Best Bachelor Thesis, China University of Geosciences, Beijing, China
2013	Second Prize Scholarship, China University of Geosciences, Beijing, China
2012	Outstanding Volunteer for rural elementary schools, China University of Geosciences, Beijing, China

Publications

Peer-Reviewed

4. Hu, Y., **Wei, X.**, Wu, X., Sun, J., Chen, J., Huang, Y., Chen, J., 2021. A deep learning enhanced framework for multi-physics joint inversion. *IEEE TRANSACTIONS ON NEURAL NETWORKS AND LEARNING SYSTEMS*. under review

3. **Wei, X.** and Sun, J., 2020. Uncertainty analysis of 3D potential-field deterministic inversion using mixed Lp norms. *Geophysics*. under review

2. Sun, J., **Wei, X.**, 2020. Recovering sparse models in 3D potential-field inversion without bound dependence or staircasing problems using a mixed Lp-norm regularization. *Geophysical Prospecting*. doi:10.1111/1365-2478.13063.

1. Sun, J., Melo, A., Kim, J.D. and **Wei, X.**, 2020. Unveiling the 3D undercover structure of a Precambrian intrusive complex by integrating airborne magnetic and gravity gradient data into 3D quasi-geology model building. *Interpretation*, 8(4), pp.1-50. doi:10.1190/INT-2019-0273.1.

In preparation

1. **Wei, X.** and Sun, J., 2021. Uncertainty analysis of 3D geology differentiation models via joint inversion.

Conference Proceedings

3. **Wei, X.** and Sun, J., 2020. Uncertainty analysis of joint inversion using mixed Lp-norm regularization. In *SEG Technical Program Expanded Abstracts 2020* (pp. 925-929). Society of Exploration Geophysicists. doi:10.1190/segam2020-3428359.1.

2. **Wei, X.** and Sun, J., 2020. Quantifying uncertainties of deterministic geophysical inversions using mixed Lp norms. In *SEG Technical Program Expanded Abstracts 2020* (pp. 1404-1408). Society of Exploration Geophysicists. doi:10.1190/segam2020-3420227.1.

1. Sun, J., Melo, A., Deok Kim, J. and **Wei, X.**, 2020. Characterizing a Precambrian intrusive complex by integrating potential field data into 3D quasi-geology model building. In *SEG Technical Program Expanded Abstracts 2020* (pp. 1374-1378). Society of Exploration Geophysicists. doi:10.1190/segam2020-3428385.1.

Teaching Experiences

2020 GEOL7330: Potential Field Methods of Geophysical Exploration (graduate core course), **guest lecturer**, University of Houston

2019 GEOL4355: Geophysical Field Camp, **teaching assistant**, University of Houston

Professional Affiliations & Activities

2020–	Core contributor of joint inversion code in SimPEG (https://simpeg.xyz/)
2020–Present	American Geophysical Union (AGU)
2020–Present	European Association of Geoscientists & Engineers (EAGE)
2018–Present	Society of Exploration Geophysicists (SEG)

Certifications

2018	Certificate signed by Prof. Andrew Ng upon successfully completing the online machine learning course provided by Stanford University through Coursera Inc.