Personal Information

Gender: Male Date of Birth: 12th August, 1991

Business Address: No.28 of Xianning West Road, Xi'an, Shaanxi, 710049

Homepage: https://davidliu-code.github.io/

Research Focus

Seismic signal processing, deep learning, tensor decomposition, and time-frequency analysis

Skills

Tensorflow, Pytorch, Python, GPU, CUDA, Matlab, and Parallel Computing

Education

- September 2018 – September 2022 (expected) **Supervisor**: Wenchao Chen
  PhD candidate in Information and Communication Engineering, Xi'an Jiaotong University, China.
- January 2020 – July 2022 (expected) **Supervisor**: Mauricio D. Sacchi
  Visiting PhD student in Physics, University of Alberta, Canada.
- September 2015 - July 2018 **Supervisor**: Wenchao Chen
  Master student in Electronics and Communication Engineering, Xi'an Jiaotong University, China.
- September 2009 - June 2013
  Bachelor student in Communication Engineering, Chang'an University, China.

Peer-reviewed Papers

1. **Dawei Liu**, Xiangfang Li, Wei Wang, Xiaokai Wang, Zhensheng Shi, and Wenchao Chen, "Eliminating harmonic noise in vibroseis data through sparsity promoted waveform modeling," Geophysics (accepted).

2. Xiaokai Wang, Zhizhou Huo, **Dawei Liu**, Weiwei Xu, and Wenchao Chen, (2022), "A common-reflection-point gather random noise attenuation method based on the synchrosqueezing wavelet transform," Interpretation, 10: SA59-SA67.

3. Xiaokai Wang, **Dawei Liu***,and Wenchao Chen, "Accelerating seismic dip estimation with deep learning," IEEE Geoscience and Remote Sensing Letters, vol. 19, pp. 1-5, 2022.

4. **Dawei Liu**, Lei Gao, Xiaokai Wang, and Wenchao Chen, (2021), "A dictionary learning method with atom splitting for seismic footprint suppression," Geophysics, 86: V509-V523.

5. Yanglijiang Hu, **Dawei Liu**, Xiaokai Wang, Zhonghua Zhao and Wenchao Chen, "Attenuation of the multiple reflection-refraction in 2-d common-shot gather via random-derangement-based fx cadzow filter," IEEE Geoscience and Remote Sensing Letters, vol. 19, pp. 1-5, 2022.

6. **Dawei Liu**, Zheyuan Deng, Cheng Wang, Xiaokai Wang and Wenchao Chen, "An unsupervised deep learning method for denoising prestack random noise," IEEE Geoscience and Remote Sensing Letters, vol. 19, pp. 1-5, 2022.

7. **Dawei Liu**, Wei Wang, Xiaokai Wang, Cheng Wang, Jiangyun Pei and Wenchao Chen, "Poststack seismic data denoising based on 3-d convolutional neural network," IEEE Transactions on Geoscience and Remote Sensing, vol. 58, no. 3, pp. 1598-1629, March 2020.

Papers Under Review

1. **Dawei Liu**, Haoqi Zhang, Xiaokai Wang, Wenchao Chen, Zhensheng Shi, and Zhonghua Zhao, (2021), "Separation of seismic multiple reflection-refraction based on morphological component analysis with high-resolution linear radon transform," Geophysics. (**Minor** revision submitted)

2. **Dawei Liu**, Xiaokai Wang, Xiaohai Yang, Haibo Mao, Mauricio D. Sacchi, and Wenchao Chen, (2021), " Efficient seismic scattered noise attenuation in OVT domain: application of deep learning," Geophysics. (**Major** revision submitted)

3. **Dawei Liu**, Mauricio D. Sacchi, and Wenchao Chen, (2022), "Five-dimensional seismic reconstruction based on low tensor network rank via randomized parallel matrix factorization," IEEE Transactions on Geoscience and Remote Sensing. (Under review)

Meeting Abstracts

1. **Dawei Liu**, Xiaohai Yang, Xiaokai Wang, Haibo Mao, Mauricio D. Sacchi, and Wenchao Chen, (2021), "Deep learning for prestack strong scattered noise suppression," SEG Technical Program Expanded Abstracts : 1601-1605.

2. Haoqi Zhang, **Dawei Liu**, Xiaokai Wang, and Wenchao Chen, (2021), "Attenuation of multiple reflection-refraction in tau-p domain via morphological component analysis," SEG Technical Program Expanded Abstracts : 2974-2978.

3. Qinlong Hou, **Dawei Liu**, Xiaokai Wang, and Wenchao Chen, (2021), "Adaptive DAS coupling noise suppression based on local MCA," SEG Technical Program Expanded Abstracts : 2979-2983.

4. Chen Zhao, Li Jiang, Xiaokai Wang, **Dawei Liu**, Zhensheng Shi, and Wenchao Chen, (2021), "Prestack seismic noise attenuation based on 3D CWT," SEG Technical Program Expanded Abstracts : 2834-2838.

5. **Dawei Liu**, Wenchao Chen, Mauricio D. Sacchi, and Hongxu Wang, (2020), "Should we have labels for deep learning ground roll attenuation?," SEG Technical Program Expanded Abstracts : 3239-3243.

6. **Dawei Liu**, Zheyuan Deng, Xiaokai Wang, Wei Wang, Zhensheng Shi, Cheng Wang, and Wenchao Chen, (2020), "Must we have labels for denoising seismic data based on deep learning?," SEG Global Meeting Abstracts : 31-35.

7. **Dawei Liu**, Xiaokai Wang, Zhensheng Shi, Yanhui Zhou, and Wenchao Chen, (2019), "A convolutional neural network for seismic dip estimation," SEG Technical Program Expanded Abstracts : 2634-2638.

8. **Dawei Liu**, Xiaokai Wang, Wenchao Chen, Yanhui Zhou, Wei Wang, Zhensheng Shi, Cheng Wang, and Chunlin Xie, (2019), "3D seismic waveform of channels extraction by artificial intelligence," SEG Technical Program Expanded Abstracts : 2518-2522.

9. **Dawei Liu**, Wei Wang, Wenchao Chen, Xiaokai Wang, Yanhui Zhou, Zhensheng Shi. Random noise suppression in seismic data: what can deep learning do? [C].2018 SEG Annual Meeting, 2018. [*Cited by Professor Öz Yilmaz in his new book: Land seismic case studies for near-surface modeling and subsurface imaging, 2021.]*

10.Fen Zhang, **Dawei Liu**, Xiaokai Wang, Wenchao Chen. Random noise attenuation method for seismic data based on deep residual network[C]. 2018 CPS/SEG Annual Meeting, 2018.

11.Siqi Chi, Wenchao Chen, Lu Zhang, **Dawei Liu**, Jianyou Chen. Three-dimensional seismic texture attributes analysis based on removed strong background noise[C]. 2018 CPS/SEG Annual Meeting, 2018.

12.Jianyou Chen, Wenchao Chen, Xiaokai Wang, **Dawei Liu**. The DAS coupling noise removal using alternating projection iteration with united sparse transforms. 2018 CPS/SEG Annual Meeting, 2018.

13.Jianyou Chen, Yuefeng Pang, Wenchao Chen, Lei Gao, **Dawei Liu**. The analysis of space dimensionality reduction error in SVD filtering algorithm with application to VSP wavefield separation [C].2018 CPS/SEG Annual Meeting, 2018.

Awards and Group Memberships

National Award scholarship of PhD Student, October 2020
School outstanding postgraduate Cadre, September 2016
School outstanding graduate students, September 2013

Self-assessment

Energetic, dynamic and honest
Excellent ability of systematical management
Ability to work independently, mature and resourceful