

# Nam Pham

3111 Tom Green Street, APT 108, Austin, Texas 78705

Cell: 9187045881

Email: nam-pham@utexas.edu

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## OBJECTIVE

A summer internship in machine learning in petroleum geophysics, well-logging and reservoir characterization

## EDUCATION

PHD in Geological Sciences, Computational Geophysics May 2023  
The University of Texas at Austin, Jackson School of Geosciences  
Advisor: Dr. Sergey Fomel

Master of Science in Geological Sciences, Computational Geophysics May 2019  
The University of Texas at Austin, Jackson School of Geosciences  
Thesis: *Automatic channel detection using deep learning*

- Using Bayesian SegNet for automatically detecting 3D channel geobodies with uncertainty estimation
- Using Generative Adversarial Networks (GANs) in seismic processing and migration

Advisor: Dr. Sergey Fomel  
GPA: 3.8

Petroleum Geophysics Summer Course Summer 2016  
Federal University (UFRN), Natal, Brazil

- Introduction to Petroleum Geophysics
- Terra Program sponsored by SEG, University of Tulsa, and 100,000 Strong in the Americas
- Collect GPR data
- Intermediate Portuguese

Instructor: Dr. Jingyi Chen  
Dr. Francisco Bezerra

Bachelor of Science in Geophysics May 2017  
The University of Tulsa, Department of Geosciences  
Advisor: Dr. Jingyi Chen  
GPA: 4.0

Bachelor of Science in Mathematics May 2017  
The University of Tulsa, Department of Mathematics  
Advisor: Dr. Kevin O'Neil  
GPA: 4.0

## ACADEMIC EXPERIENCE

Adecco at Google, Austin, Texas July 2018 – October 2018  
Geoscience Engineer Internship at Google Cloud

- Designing and developing a platform to build model in Tensorflow
- Capturing the reproducibility of machine learning algorithms

for subsurface geophysics applications

- Exploring Generative Adversarial Networks (GANs) in geophysics

Advisor: Dr. Kenton Prindle

The University of Texas at Austin – Bureau of Economic Geology      September 2017 - now  
Graduate Research Assistant

- Implementing Deep Neural Network in Tensorflow and Python
- Seismic pattern recognition with well log interpretation
- Automatic channel detection in seismic using deep learning
- Missing well-log prediction using deep learning
- Least-square migration and seismic interpolation using GAN

Advisor: Dr. Sergey Fomel

The University of Texas at Austin – Seismic data processing course      April 2018 – May 2018  
Processing 2D field seismic data from Nankai dataset in Japan

- Using Madagascar open source to process the field dataset from raw data.

Instructor: Dr. Sergey Fomel

The University of Tulsa – Advanced GIS: Spatial Analysis course      April 2017 – May 2017  
Spatial Analysis of earthquakes and injection wells in Northwest of Oklahoma

- Using Petra to correlate 11 wells in area of interest
- Using neutron density log to calculate Phi-H value of Arbuckle formation
- Using ArcGIS to do geostatistics between Phi-H value and Arbuckle thickness  
Phi-H value and number of earthquakes

Instructor: Dr. Bryan Tapp

The University of Tulsa – Imperial Barrier Award competition      December 2016 – March 2017  
2D Seismic and well log interpretation

- Reservoir characterization and basin analysis of Taranaki Basin, New Zealand
- Using Petra, Petrel, Hampson Russel, and Kingdom Suite for interpretation

Advisor: John M. Turmelle (Recoleta Resources, LLC)  
Dr. Steven Roche (Cimarex Energy, Co.)

The University of Tulsa – Department of Geosciences      January 2016 – May 2016  
Undergraduate Research Project

- 3D seismic and well log interpretation of reservoir in Teapot Dome, Wyoming
- Using OpendTect to tie wells to seismic

Instructor: Dr. Kumar Ramachandran

## PUBLICATIONS

### Journal Articles

- **N. Pham**, S. Fomel, and D. Dunlap, 2019, *Automatic channel detection using deep learning: Interpretation*, 7, no. 3, SE43-SE50.  
<https://doi.org/10.1190/INT-2018-0202.1>
- Accepted manuscript for special section “Machine learning and data analytics” in Geophysics journal  
Title: *Missing well log prediction using convolutional long short-term memory*

Author: **Nam Pham**, Xinming Wu, and Ehsan Naeini

<https://doi.org/10.1190/geo2019-0282.1>

- X. Wu, Z. Geng, Y. Shi, **N. Pham.**, and S. Fomel, 2020, *Building realistic structure models to train convolutional neural networks for seismic structural interpretation*: Geophysics, 85, no. 4, WA27-WA39.  
<https://doi.org/10.1190/geo2019-0375.1>
- Accepted manuscript for special section “Machine learning and data analytics” in Geophysics journal  
Title: *Improving resolution of migrated images by approximating the inverse Hessian using deep learning*  
Author: Harpreet Kaur, **Nam Pham**, and Sergey Fomel  
<https://doi.org/10.1190/geo2019-0315.1>

## Conference Abstracts

- **N. Pham** and X. Wu, 2019, *Missing sonic log prediction using convolutional long short-term memory*: SEG Technical Program Expanded Abstracts 2019, 2403-2407.  
<https://doi.org/10.1190/segam2019-3215375.1>
- **N. Pham** and E. Naeini, 2019, *Missing well log prediction using deep recurrent neural networks*: 81<sup>st</sup> EAGE Conference and Exhibition, 1-5.  
<https://doi.org/10.3997/2214-4609.201901612>
- **N. Pham**, S. Fomel, and D. Dunlap, 2018, *Automatic channel detection using deep learning*: SEG Technical Program Expanded Abstracts 2018, 2026-2030.  
<https://doi.org/10.1190/segam2018-2991756.1>
- X. Wu, Z. Geng, Y. Shi, **N. Pham**, and S. Fomel 2019, *Building realistic structure models to train convolutional neural networks for seismic structural interpretation*: SEG Technical Program Expanded Abstracts 2019, 4745-4750.  
<https://doi.org/10.1190/segam2019-3214282.1>
- H. Kaur, **N. Pham**, and S. Fomel, 2019, *Estimating the inverse Hessian for amplitude correction of migrated images using deep learning*: SEG Technical Program Expanded Abstracts 2019, 2278-2282.  
<https://doi.org/10.1190/segam2019-3207296.1>
- H. Kaur, **N. Pham**, and S. Fomel, 2019, *Seismic data interpolation using CycleGAN*: SEG Technical Program Expanded Abstracts 2019, 2202-2206.  
<https://doi.org/10.1190/segam2019-3207424.1>
- H. Kaur, S. Fomel, and **N. Pham** 2019, *Overcoming numerical dispersion of finite-difference wave extrapolation using deep learning*: SEG Technical Program Expanded Abstracts 2019, 2318-2322.  
<https://doi.org/10.1190/segam2019-3207486.1>
- H. Kaur, S. Fomel, and **N. Pham** 2019, *Elastic wave-mode separation in heterogeneous anisotropic media using deep learning*: SEG Technical Program Expanded Abstracts 2019, 2654-2658.  
<https://doi.org/10.1190/segam2019-3207506.1>
- H. Kaur, S. Fomel, and **N. Pham**, 2019, *Ground roll attenuation using generative adversarial network*: 81<sup>st</sup> EAGE Conference and Exhibition, 1-5.  
<https://doi.org/10.3997/2214-4609.201900762>
- H. Kaur, S. Fomel, and **N. Pham**, 2019, *A fast hyperbolic Radon transform algorithm using deep neural network*: 81<sup>st</sup> EAGE Conference and Exhibition, 1-5.  
<https://doi.org/10.3997/2214-4609.201901616>

## SKILLS AND CERTIFICATIONS

### Computer Skills

Deep Neural Network with Tensorflow, Pytorch, Keras, Python, Matlab, Petrel, Petra, ArcGIS,

OpendTect, IHS Kingdom Suite, Hampson Russell, Seismic Unix, Madagascar, Mathematica, Autocad,

Microsoft Office

### **Technical Skills**

- Interpretation of 2D and 3D seismic data, well logs, and potential fields
- Spatial analysis and geological mapping in ArcGIS
- Implementing deep neural network in Tensorflow, Pytorch, Keras
- Seismic data processing in Madagascar and Seismic Unix
- Drawing 2D Autocad

### **Certifications**

- Neural Networks and Deep Learning by Coursera
- Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization
- Structuring Machine Learning Projects
- Convolutional Neural Networks
- Sequence Models
- Reinforcement Learning Specialization

### **HONORS AND AWARDS**

A.N. Murray Award for Outstanding Academic Achievement in Geophysics	2017
Ralph W. Veatch Award for Outstanding Academic Achievement in Mathematics	2017
AIPG National Scholarship	2016
TU President's Honor Roll	2014 – 2017
PetroVietnam Scholarship	2014 – 2017

### **ACADEMIC COURSEWORK**

Well Logging for Geoscientists, Seismic Processing, Petroleum Seismology, Applied Geophysics, Advanced GIS: Spatial Analysis, Machine Learning, Quantitative Seismic Interpretation, Inverse Theory, Seismic Imaging, Introduction to Geostatistics, Structural Geology

### **PROFESSIONAL ORGANIZATION MEMBERSHIPS**

Society of Exploration Geophysicists  
Texas Consortium for Computational Seismology  
Tulsa Geological Society  
American Institute of Professional Geologists

