Sagar SINGH

PhD Student

- 13 January 1993
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About me ———

I love what I do. This is the reason I am here at CWP, Colorado school of mines living my life as a student AGAIN. I have always been fascinated by real world application of mathematics. Owing to my interest, I chose Geophysics after the completion of my high school. I was encouraged by the opportunity to apply mathematics, experiment the laws of physics and get real tangible results by applying them on real earth and to find application for the betterment of the humanity. And yes, I love skiing, hiking, ice skating (Colorado effect :)) and I consider myself a decent player of snooker.

Skills ———

GPU programming

MPI and OpenMP C

Linux

Python

Snooker

(*)[The skill scale is from 0 (Fundamental Awareness) to 6 (Expert).]

Interests

Full waveform inversion, Machine learning, High performance computing, Computer vision.

Education

Aug. 2017 -	Ph.D. candidate in Geophysics, Colorado School of Mines	CWP
	Project- Full waveform inversion for reservoir characterization Minor in computer science	
2011-2016	Integrated M.Tech. Geophysical Technology	IIT Roorkee, India
	Project- Image reconstruction in time and frequency domain	

Publications

2018	Singh, S., Tsvankin, I. and Zabihi Naeini, E.: Bayesian framework for elastic full-waveform inversion with facies information. The Leading Edge (Accepted)
2016	Singh, S. and Sain, K.: GPU implementation for high speed elastic forward modelling. 53rd Annual convention of Indian Geophysical Union and 1st Triennial Congress of FIGA.
2016	Singh, S., Kanli, A. I. and Mukhopadhyay, S.: Full waveform inversion in seismic imaging: Marmousi velocity modelling with FWISIMAT. 6th International Conference on Computer Application in Mineral Industries
2016	Singh, S. and Kanli, A. I.: Estimating shear wave velocities in oil fields: a neural network approach. Geoscience Journal, 20, 221-228
2016	Singh, S., Kanli, A. I. and Sevgen, S.: A general approach for porosity estimation using artificial neural network method: a case study from Kansas gas field. Studia Geophysica et Geodaetica, 60, 130-140

Honors and Awards

2015-2016	Fellowship: Human Resource Development fellowship, India
2011-2016	Scholarship: Indian naval benevolent association scholarship, India

Experience

2018	Teaching assistant-Introduction to Seismology I	CSM
	Delivered lectures and discussed the properties of far-field and near-field green function and their radiation patterns.	
2017	Project assistant under Prof. Younghee Kim	SNU, S. Korea
	Centroid moment tensor inversion for largest recorded earthquake in Korean peninsular.	
2017	Visiting student under Prof. Daniel B. Peter	KAUST, Saudi Arabia
	2D Elastic VTI full waveform inversion on a GPU cluster.	
2016	Software developer at MapMyIndia	New Delhi, India
	Computer vision and machine learning.	
2015	Intern under Dr. Venky Krishnan	CAM Bangaluru, India
	Image reconstruction in seismic imaging for various acquisition geometries.	

Other information

Supervisor: Prof. Ilya Tsvankin

Project

Currently I am working on 3D elastic VTI Full Waveform Inversion with the idea to constraint FWI work-flow using geological facies to get improved spatial resolution of inverted parameters. The big picture is that I want to push the ability of FWI beyond imaging and use it for reservoir characterization purpose. I will explore the possibility of extending the idea to an elastic orthorhombic media. I also intend to do targeted inversion using local solvers in time domain.