Neeraj Nainwal
(Graduate Student)

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🎓 EDUCATION

2021-Present	**Doctor of Philosophy** | Geological Sciences and Geological Engineering, QUEEN'S UNIVERSITY, Kingston, Canada
	› **Topic :** Cooperative Inversion of UAV-borne Hyperspectral and Magnetometer data for Improved Mineral Exploration
2018-2020	**Master of Technology** | Geological Technology, INDIAN INSTITUTE OF TECHNOLOGY (IIT), Kanpur, India
	› **Thesis :** Numerical Modeling of 2D Electrical Resistivity Data using in-house MATLAB codes.
	› CPI : 8.03/10
2013-2017	**Bachelor of Technology** | Geoscience Engineering, UNIVERSITY OF PETROLEUM AND ENERGY STUDIES , Dehradun, India
	› CGPA : 2.87/04

📖 RESEARCH INTEREST

› Numerical Modeling, Inverse theory, Potential field methods, and Drone Geophysics.

🔨 HONORS & AWARDS

2023	CSEGF scholarship ($2,000)
2022	KEGS Foundation (CGG) Scholarship ($1,000).
2018-2020	National Scholarship for Graduate Students at IIT Kanpur.
2018	96.49 percentile in National Graduate Aptitude Test Engineering (GATE) Exam, India.

💼 PROFESSIONAL WORK EXPERIENCE

RESULTS SURVEY PRIVATE LIMITED   WINTER 2017-SUMMER 2018

Position : Team Lead Geophysicist.

Responsibilities :
› Planning, Supervision, and execution of Geophysical work to investigate the subsurface anomalies.
› Responsible for Documentation, Quality checks, and client handling.

🖥 RESEARCH EXPERIENCE

1) GEOPHYSICAL SURVEY AND ANALYSIS OF EAST KINGSTON LANDFILL SITE   FALL 2021

Role : Graduate research project

Responsibilities :
› Acquisition, processing, and Interpretation of Electrical resistivity tomography (ERT), Electromagnetic methods (EM), and Ground penetrating radar (GPR) data.
› Identification of subsurface garbage layer thickness and potential leakage zones.

2) NUMERICAL MODELING OF 2D ELECTRICAL RESISTIVITY DATA USING IN-HOUSE MATLAB CODES   FALL 2019- SUMMER 2020

Role : Master's thesis

Responsibilities :
› Development of MATLAB-based 2D resistivity forward modeling algorithm using a finite-difference method and inverse modeling algorithm using a damped least square approach.
› Identified the potential artificial groundwater recharge zones to store the runoff rainwater.

3) STUDY ON SPRING REJUVENATION USING RESISTIVITY METHOD AND REMOTE SENSING "   FALL 2016

Role : Undergraduate research project

Responsibilities :
› Identification of subsurface recharged water-bearing aquifer using ERT and Satellite data.

💼 INTERNSHIPS

1) Modelling of Earthquake Precursor using Magnetotelluric (MT) data   Summer 2019

Organization : National Geophysical Research Institute, India .

Learnings :
> Development of MATLAB-based algorithm for the time series and wavelet power analysis of MT data.

2) Hydrocarbon Seepages Detection using Multi-Spectral Data   Summer 2016

Organization : Indian Institute of Remote Sensing (ISRO), India .

Learnings :
> Analysis of surficial mineral alterations and spectral signatures to determine the potential hydrocarbon leakages on the surface.

3) Study of subsurface basalt formation at KG basin   Summer 2015

Organization : Oil and Natural Gas Corporation (India)

Learnings :
> Planning, Reconnaissance survey, and acquisition of gravity, magnetic and magnetotelluric data.
> Joint interpretation of processed geophysical data for the determination of Tectonic settings in KG Basin.

🔖 Field School

> Field training at Jodhpur Marwar Supergroup, India	Winter 2016
> Field visit to Mohand Anticline (Uttarakhand), India	Winter 2015

📘 Teaching Assistantship

GEOL 106 :	Enviro Geol and Natural Hazards.
GEOE 319 :	Applied Geophysics.
ESO 213A :	Fundamentals of Earth Sciences
ES 655A :	Fundamentals of Geophysics

📶 Technical Skills

Utilities	MATLAB, WinGlink, Phoenix-Geophysics, RESI2MOD, RES2DINV, QGIS, Prism, ENVI, ARCGIS.
Instruments handled	Ground-Penetrating Radar (GPR), Gravitimeter CG-5, Magnetometer, IRIS-Syscal R1 , DGPS.
Programming Languages	C++ , Python
Libraries	TensorFlow, Numpy, pandas

🥧 Conference Proceedings

> **Nainwal, N.**, Dekate, A., Mishra, U., Mandal, A., Kumar, P. (2020, Feb 23-25). A MATLAB based program for the inversion of time-lapse ERT data [Poster presentation]. Society of Petroleum Geophysicists (SPG), Kochi, India. https://spgindia.org/Kochi2020-expanded-abstracts/id-354-revised-a-matlab-based-program.pdf

👥 Volunteer Experience

> Events Head at Association of Indian Graduate students at Queens (AIGSQ) club, Queens University.	Fall 21-Present
> Vice President at Earth Sciences Society, Department of Earth Sciences, IIT Kanpur.	Summer 2019-2020

📘 Relevant Coursework

Statistical methods in Geosciences	Applied Geology I, II, III	Mathematics I, II, III
Programming languages and DBMS	Applied Numerical Methods	Fluid Mechanics
Groundwater exploration	Remote Sensing and GIS	Advanced Structural Geology