

Kiran Pandey

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[Website](#) | [Google Scholar](#) | [LinkedIn](#)

EDUCATION

- **PH.D. IN GEOPHYSICS, UNIVERSITY OF MEMPHIS** [EXPECTED: FALL-2023]
- **MASTER OF SCIENCE IN GEOPHYSICS, UNIVERSITY OF MEMPHIS (GPA-3.89)** [2021]
- **MASTER OF SCIENCE IN GEOLOGY, TRIBHUVAN UNIVERSITY, NEPAL (GPA-3.64)** [2017]
- **BACHELOR OF SCIENCE IN GEOLOGY, TRIBHUVAN UNIVERSITY, NEPAL** [2013]

SKILLS & SOFTWARE

Geophysical: *AGI EarthImager2d / RES2d inv / SeisImager2d / Vallen AE Suite Software / OpendTect / RADAN/ Surfer/ Rayfract/ Seismic Analysis and Interpretation / Geophysical Investigations / Advance Signal Processing / Acoustic data processing and analysis*

Programming: *Python / Scikit-learn / Tensor Flow / SQLIT / ObsPy / Machine learning / Deep learning / MATLAB / SAC*

Mapping: *Q-GIS / ArcGIS / AutoCAD*

Geological & Geotechnical: *Dips / RS2 / Slide2d / SWedge / Grapher / Laboratory Analysis / Geological Mapping / Geotechnical Assessments / Rock Mass Characterization / Soil and Rock logging/ Borehole Geophysics*

Leadership: *Project Management / Logistics Coordination / Field Team Leadership / Safety Compliance*

PROFESSIONAL EXPERIENCE

CERI, UNIVERSITY OF MEMPHIS, MEMPHIS, TN, USA

Doctoral Research Assistant

08/2019 – PRESENT

EARTHQUAKE PHYSICS GROUP AT CERI LABORATORY SETUP AND TESTING

- Installed AE Suite Software with a 14-channel and SDS mechanical system, enhancing earthquake research capabilities.
- Conducted instrumented transient strain and acoustic emission measurements in laboratory-scale earthquake experiments, providing valuable data for analysis.
- Implemented a high frame rate camera and employed digital image processing techniques to analyze laboratory slip behavior and capture detailed information, enabling precise analysis.
- Gained valuable insights into seismic data processing and independently conducted laboratory experiments within the earthquake physics lab, showcasing research autonomy.
- Developing new seismic software for the EPG lab at CERI, focusing on detecting subtle velocity changes and acoustic emissions during stick-slip experiments on PMMA and natural fault gouges.
- Working on resolving 2D displacement and strain fields using digital image correlations, contributing to a comprehensive understanding of laboratory slip behavior and deformation patterns.
- Demonstrated robust seismic analysis, laboratory experimentation, and software development skills, effectively contributing to the Earthquake Physics Group at CERI.

PROJECT: INFERRING MICROCRACK STATE AND EVOLUTION FROM CODA WAVE VELOCITY CHANGES IN FAULTED AND INTACT GRANITE SAMPLES

- Utilized experiments data on faulted and intact granite samples using active and passive source acoustic data recorded by DAXBox, PRÖKEL, Germany, and a servo-controlled Material Testing System (MTS) 4600 kN triaxial loading frame for intact rock compression, faulted saw cut sample compression, and intact rock fracture experiments.
- Advanced signal processing algorithms, such as time-frequency analysis, wavelet transforms, and spectral analysis, were used to extract valuable information embedded in the acoustic data.
- Measured direct P-wave velocity and coda wave velocity to compare their usefulness in inferring microcrack state and evolution.
- Employed coda wave interferometry with two methods, namely moving window cross-correlation and dynamic time warping, to analyze relative coda wave velocity changes.
- Assessed the effectiveness of seismic measurements, particularly active source velocity measurements, in tracking microcrack evolution, damage zones, and their progression during different types of experiments.

GEOPHYSICAL PROJECTS AT CERI

- Non-Invasive Subsurface Utility Mapping using Ground-Penetrating Radar (GPR) at an old Home Site near CERI, University of Memphis.
- Ground-Penetrating Radar (GPR) Survey for Locating a Buried Swimming Pool near the University of Memphis.
- Geophysical Investigation of Subsurface Volcanic Vents in the Yellowstone Volcanic Region Using Gravity and Magnetic Surveys.

- Electrical Resistivity Tomography (ERT) Survey for Splay Fault Identification in the Mississippi Embayment Fault System near Dyers County.

MANIFOLD CONSULT PVT. LTD., KATHMANDU, NEPAL

Founding Director | GEOPHYSICIST

08/2016 – 08/2019

- Spearheaded the establishment of Manifold Consult, a geophysical and geological consulting company in Nepal, from inception to becoming a prominent player in the industry.
- Led and directed all aspects of the company's operations, including business development, project management, and financial oversight.
- Conducted geophysical surveys, including ERT, SRT, MASW, and MAM, to analyze and evaluate subsurface conditions for various Hydropower components.
- Successfully performed GPR, ERT, and SRT methods to study landslides and assess road projects, including Railway alignments, resulting in accurate and comprehensive geophysical assessments.
- Led and participated in numerous successful geophysical investigations, geological mapping exercises, and drilling supervision activities, contributing to accurately assessing subsurface conditions and geological structures.
- Conducted extensive research and analysis, developing well-structured proposals and reports, and delivering vital information for project planning and decision-making.
- Demonstrated expertise in interpreting complex geophysical data, enabling the identification of key subsurface features, and providing actionable recommendations to clients.
- Maintained compliance with all health, safety, and environmental regulations during fieldwork and fostered a secure work environment for all team members.

ERMCGEOTECH SERVICES PVT. LTD., KATHMANDU, NEPAL

Geophysicist | Geologist

01/2017 – 07/2019

- Managed and led field teams for geotechnical assessments of railway projects, bridges, and hydropower initiatives. Oversaw drilling operations and ensured adherence to project specifications.
- Conducted detailed engineering geological mapping of railway alignments and hydropower sites to assess geological conditions and identify potential construction material sites.
- Verified logs and analyzed soil profiles to assess geological characteristics and inform engineering decisions.
- Administered drilling operations, including logistics and field coordination, for collecting soil samples to evaluate their suitability as construction materials and determine subsurface conditions.
- Prepared and reviewed comprehensive reports summarizing geotechnical findings, recommendations, and management strategies.
- Presented geotechnical reports, interpreted laboratory test results, and provided slope stability and foundation design recommendations for clients.
- Directed field teams, providing training and guidance in mapping, soil sampling, laboratory testing, and report preparation.

CENTER FOR GEO-ENVIRONMENT AND ENGINEERING RESEARCH (CGER), LALITPUR, NEPAL

Engineering Geologist | Geophysicist

11/2016 – 01/2017

- Conducted detailed engineering geological mapping for hydropower, landslides, and building projects.
- Performed field geophysical surveys using techniques such as Multi-channel Analysis of Surface Waves (MASW), Electrical Resistivity Tomography (ERT), and Seismic Refraction Tomography (SRT) for subsurface characterization.
- Prepared detailed reports summarizing project progress, findings, and recommendations for clients.

CONSULTANT GEOLOGIST:

12/2014 – 11/2016

- Conducted field investigations and geological mapping of landslide-prone areas.
- Assessed geological stability along access roads for hydropower projects, identifying potential landslide-prone areas and unstable slopes.

WORKSHOPS & TRAININGS

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- [Distributed Acoustic Sensing RCN Workshop](#) at University of Wisconsin - Madison (2023).
 - [Acoustic Emission Hands-on Workshop](#) (2023), remote.
 - [Crustal Deformation Modeling Workshop](#) (2022).
 - [CERI Annual Field Trip in Southern California](#) (2022).
 - [Seg/Chevron Student Leadership Symposium](#) (2022).
 - [SEG EVOLVE](#) - An SEG Program for Students and Early Career (2022).
 - [GEARS](#) (Generalist Electromechanics for Applied Researchers) Workshop (2021).
 - [NAMASTE](#) (Nepal Array Measuring Aftershock Seismicity Trailing Earthquake) Seismic Network Deployment (2016).