

# Akash Nair

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## EDUCATION

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- **Doctor of Philosophy in Geophysics** Sep 2023 – Present  
*University of Alberta, Edmonton, AB, Canada*  
GPA: 4.00/4.00
  - **Specialization:** Seismic Signal Analysis and Imaging
  - **Supervisor:** Prof. Mauricio D. Sacchi
- **Master of Science in Geophysics** Aug 2021 – May 2023  
*Indian Institute of Technology Kharagpur, West Bengal, India*  
GPA: 9.86/10.00
  - **Thesis:** Reservoir Characterization and Capacity Calculation for CO<sub>2</sub> Storage using AI/ML Techniques in Gandhar Field, Cambay Basin, India (**Best Thesis Award**)
  - **Supervisors:** Prof. William Kumar Mohanty (IIT Kharagpur) and Dr. Srikumar Roy (University College Dublin)
- **Bachelor of Science (Honours) in Geology** Jul 2018 – Jun 2021  
*University of Delhi, Delhi, India*  
GPA: 9.493/10.00

## HONORS AND AWARDS

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- **Prof. J.C. Bose Memorial Gold Medal** for securing the highest marks among all outgoing M.Sc. students across all departments.  
*Awarded by Smt. Droupadi Murmu, The Honourable President of the Republic of India*
- **Institute Silver Medal** for securing the highest marks in the class of M.Sc. Geophysics.
- **Kirttan B. Behera Best All-rounder Student Award** for demonstrating the best all-round performance based on Academics, Cultural activities, Art, Sports and Games, Student Activities, and Leadership among all second-year graduates of IIT Kharagpur
- **Prof. Amitabha Chakrabarti Memorial Award** for obtaining the highest marks in the Department of Geology and Geophysics in Master of Science
- **Institute Endowment Award** for Best Thesis in M.Sc. Geophysics
- **University Gold Medal** for securing the highest marks among all university students of B.Sc. (Hons.) Geology
- **Graduate Recruitment Scholarship** by the University of Alberta
- **L. Austin Weeks Undergraduate Grant Program Scholarship**
- **Class X Delhi Zonal Topper**  
*Awarded by Shri Manish Sisodia, Education Minister of NCT of Delhi, and Shri Pinarayi Vijayan, Hon'ble Chief Minister of Kerala*

## RESEARCH EXPERIENCE

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- **ProGrav: Gravity/Magnetic Data Processing Software** 2022-23  
*Indian Institute of Technology Kharagpur, India*
  - Co-developer and content writer for *ProGrav*, a software designed for processing, enhancing, and inverting gravity and magnetic survey data.
  - Supervised by Dr. William Kumar Mohanty, Professor, Department of Geology and Geophysics, IIT Kharagpur and Dr. Somanath Misra, Lead Geophysicist, Saudi Aramco.
- **Plume Effects on Mantle Transition Zone: 3D Migration Study** Dec 2021 – Jun 2022  
*National Centre for Earth Science Studies, Thiruvananthapuram, Kerala, India*
  - Performed a literature survey to understand the effect of the Reunion hotspot on the transition zone.
  - Computed P-Receiver Functions and Differential Slowness Stacks.
  - Performed quality checks of more than 16,000+ Receiver Functions.

- Co-authored a scientific paper.

- **Sustainable Development for Himalayan Villages**

*National Mission on Himalayan Studies, Govt. of India*

*Oct 2019 – Mar 2020*

- Coordinated surveys to collect demographic data and assess challenges faced by Himalayan villages in sustaining and enhancing ecological, natural, cultural, and socio-economic assets.
- Proposed a geo-excursion site in the villages of Almora District, Uttarakhand, through geological field studies.

## TRAINING AND WORKSHOPS

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- **IEAGHG International CCS Summer School**

*Saskatchewan, Canada*

*July 2025*

- Selected among 50 participants from 32 countries for intensive training on CO<sub>2</sub> capture, transport, storage, monitoring, policy, and public engagement
- Visited *Aquistore and Boundary Dam* in Saskatchewan, connecting directly with ongoing Ph.D. research on CO<sub>2</sub> storage monitoring and seismic applications

- **Field Visits and Professional Development in Carbon Capture & Storage (CCS)**

*Various Institutions across Canada*

*2024 – Present*

- Participated in field visits to leading CCS sites across Canada, observing cutting-edge research and industrial-scale implementation
- Joined the *CSEG Geophysical Industry Field Trip* at Carbon Management Canada's Field Research Station (FRS) in Newell County, focused on CO<sub>2</sub> monitoring and verification
- Visited the *Quest CCS Facility* near Edmonton during the Aquistore AGM, witnessing industrial CO<sub>2</sub> capture and storage operations

- **Paradigm 18 (Echos) Software Training**

*Seismic Imaging Centre, Banaras Hindu University, India*

*Apr 2022*

- Gained familiarity with seismic data processing steps such as geometry loading, noise attenuation, deconvolution, and migration

- **Emerging Approaches in Earthquake Occurrences and Risks**

*Indian Institute of Technology Gandhinagar, India*

*Jul 2022*

- Received hands-on training in MATLAB and Python
- Completed a group project on “*Studying Earthquake Sequence using Heat Flow Data*”

- **Geological Field Training**

*Ram Lal Anand College, University of Delhi*

*Sept–Dec 2019*

- Conducted basic geological fieldwork including geological mapping, lithology, and structure identification
- Carried out field studies in the Himalayan foothills at Mussoorie (Sept), Almora (Oct and Dec), and Nainital (Dec)

## CONFERENCE PROCEEDINGS

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1. **3D Projection Filtering using a Generalized Loss Function**, *SEG IMAGE 2025*, Houston, USA
2. **Reservoir Characterization and Capacity Calculation for CO<sub>2</sub> Storage using AI/ML Techniques in Gandhar Field, Cambay Basin, India**, *GeoConvention 2024*, Calgary, Canada

## SKILLS

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- **Programming:** Julia, MATLAB, Python, C, Shell
- **Software:** GLOBEClaritas, HampsonRussell, Paradigm 18 (Echos), GMT
- **Machine Learning:** Supervised and unsupervised learning, regression, classification, neural networks
- **OS & Tools:** Windows, Linux, LaTeX, Google Colab, GitHub, Jupyter, MS Office
- **Languages:** Malayalam (Native), English, Hindi (Advanced), Tamil, Bengali (Beginner)

## POSITIONS OF RESPONSIBILITY

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- **President, AAPG University of Alberta Student Chapter**  
*University of Alberta* 2025 – Present
- **Faculty Steward, Department of Physics**  
*University of Alberta* 2024 – Present
- **Communications Head, CSEG Geophysical Industry Field Trip (GIFT)**  
*Canadian Society of Exploration Geophysicists* 2024 – 2025
- **President, SEG Student Chapter**  
*Indian Institute of Technology Kharagpur* 2022 – 2023
- **President and Vice-President, Terre-X Geological Society**  
*Ram Lal Anand College, University of Delhi* 2020 – 2021 & 2019 – 2020

## TEACHING EXPERIENCE

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### Courses taught in B.Sc. Engineering Program at the University of Alberta:

- **EN PH 131:** Mechanics Lab [Winter 2024]
- **PHYS 130:** Waves, Optics, and Sound Lab [Fall 2023]
- **PHYS 130:** Lecture and Tutorial Support [Fall 2023]

### Private Tutoring:

- Tutored students of Classes X–XII in Mathematics, Physics, Biology, and Chemistry [2018–2021]

## ONLINE COURSES & CERTIFICATIONS

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- Machine Learning A-Z™: Hands-On Python & R in Data Science, Udemy
- Signal Processing using MATLAB
- Seismic Tomography, Novosibirsk State University, Coursera
- Oil & Gas Industry Operations and Markets, Duke University, Coursera
- Natural Hazards, NPTEL, IIT Kanpur [Top 1% of Certified Candidates]
- Structural Geology, NPTEL, IIT Kanpur
- Overview of Planetary Geosciences with emphasis on Moon and Mars, IIRS, ISRO
- Remote Sensing Applications in Agricultural Water Management, IIRS, ISRO
- Online GIS Training Program using QGIS, Central University of Karnataka
- Planetary Geodesy – Past Discoveries and Future Possibilities, W.M. Keck Institute of Space Studies

## INTERESTS & HOBBIES

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Environmentalism, Public Speaking, Anchoring, Writing, Hip-hop Music, Badminton