



PAN AMERICAN INSTITUTE OF GEOGRAPHY AND HISTORY

UNITED STATES NATIONAL SECTION



2025 Annual Meeting of the U.S. National Section

GeoForce 5: Update and Future Plans

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Overview

- **What is GeoForce 5? (Refresher)**
- **Empowering Geospatial Adoption in Academia**
- **Year in Review: Key Engagements**
- **Impactful Collaborations**



GeoForce 5

Empowering Geospatial Technology Adoption in Academia

Our Vision

*Geospatial support services offer **foundational support** and a new form of capacity building - for the workforce of tomorrow*

5 Pillars

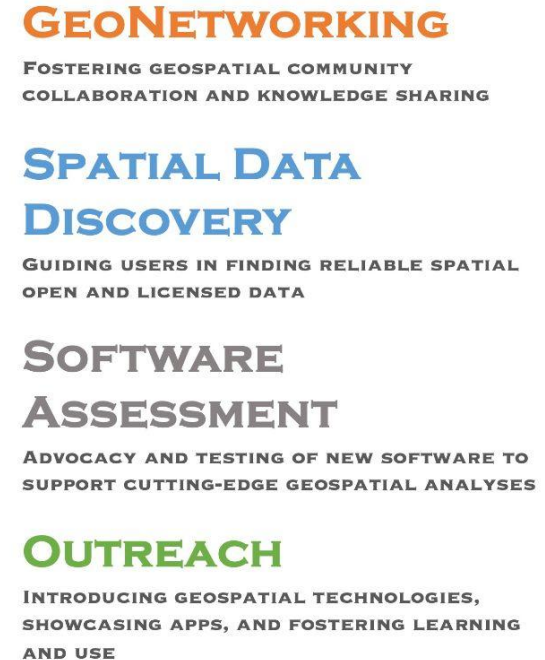
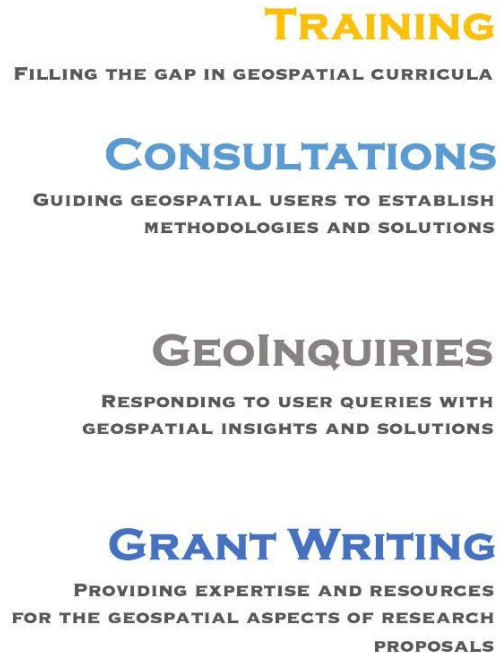
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Built on principles of collaboration and support, our group's foundation rests on five pillars:

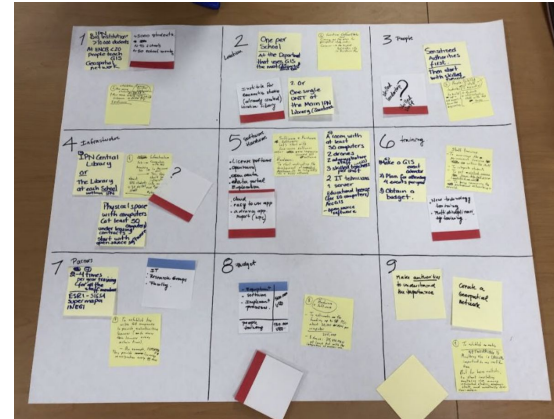
1. Expert Guidance
2. GeoInnovation
3. Outreach Programs
4. Grant Cooperation
5. GeoNetworking

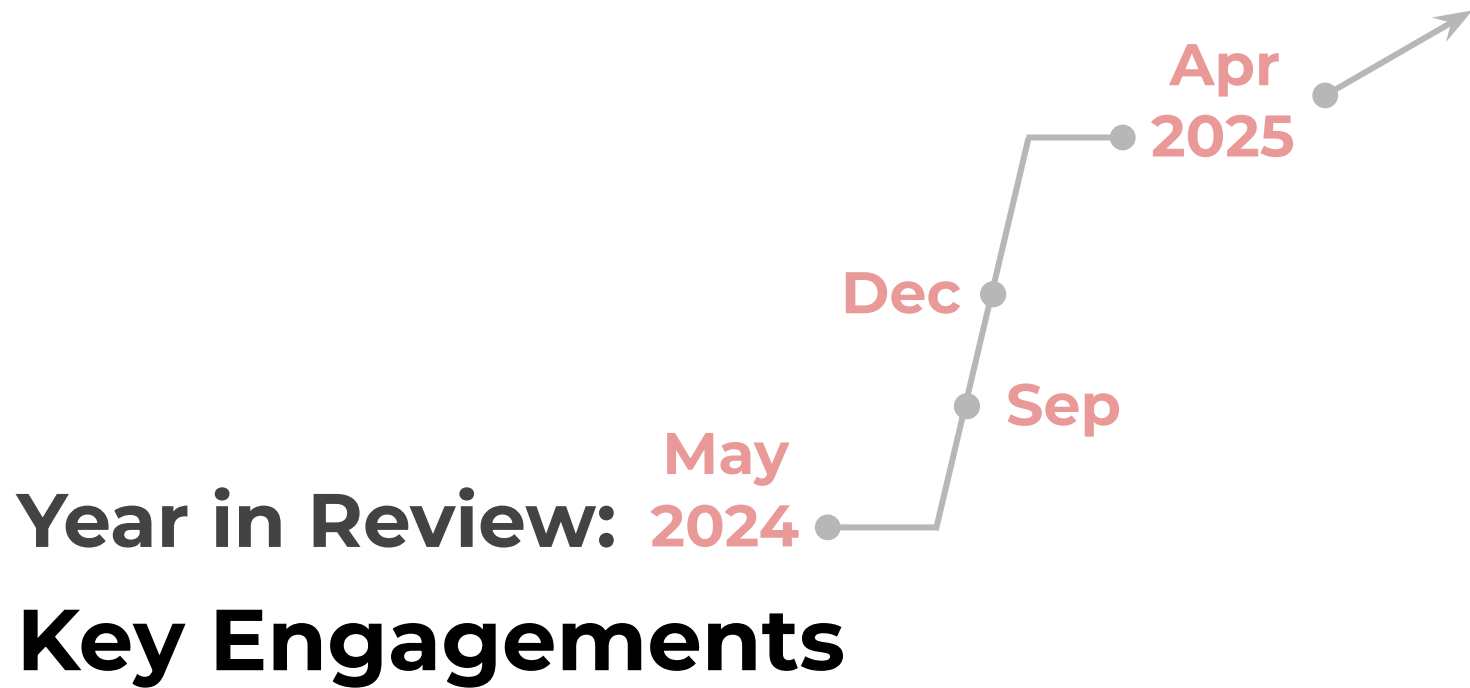
Empowering Geospatial Adoption in Academia



Our Workshops

GeoForce5 offers workshops to promote the establishment of geospatial support services, fostering collaboration, knowledge exchange, and networking in higher education to drive research, innovation, and student success.





Geospatial World Forum 2024

Rotterdam, NETHERLANDS

May 2024

PANEL



“GEOSPATIAL SUPPORT SERVICES IN ACADEMIA: EMPOWERING GEOSPATIAL SCIENCE AND TECHNOLOGY ADOPTION”

GIS LATAM 2024

Mexico City, MEXICO
September 2024

PANEL



"EMPOWERING THE GEOSPATIAL WORKFORCE OF TOMORROW"

GIS LATAM 2024

Mexico City, MEXICO
September 2024

WORKSHOP



“EMPOWERING ACTION: BUILDING GEOSPATIAL SUPPORT SERVICES IN HIGHER EDUCATION”

Monterrey Tech, School of Architecture,

Mexico City Region, Edo de Mexico, MEXICO

September 2024

MEETING



GeoSmart India 2024

Hyderabad, INDIA

December 2024

4th India-USA Space and
Geospatial Business Summit

PANEL



“SCIENCE, TECHNOLOGY, RESEARCH AND EDUCATION”

Indian Institute of Technology Bombay

Mumbai, INDIA

December 2024

MEETING



Women in Optics & Photonics in India-Asia 2024

Mumbai, INDIA

December 2024

PANEL



“GEOSPATIAL/AI CAREERS”

INACAP
Talca, CHILE
April 2025

VIRTUAL WORKSHOP



Impactful Collaborations

Instituto Politecnico Nacional (IPN)

UPIITA & the Urban Data Lab



Professor Miguel Félix Mata Rivera

Institution: Instituto Politécnico Nacional (IPN)- UPIITA

Professor and Researcher at the Instituto Politécnico Nacional (IPN)

He has led research projects for government agencies and consulting firms, and directed two nationally funded initiatives supported by CONAHCYT. He has supervised numerous theses and authored multiple publications, including one patent. He currently leads the [Geospatial Artificial Intelligence](#) and [GeoDataX](#) Laboratories at UPIITA-IPN and serves as the director of the GIS LATAM Conference



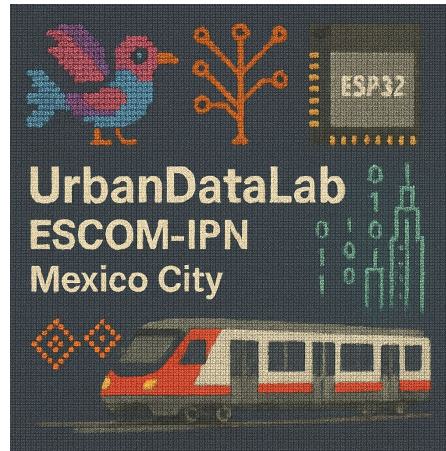


Professor Roberto Zagal

Institution: Instituto Politécnico Nacional (IPN)

Professor and Researcher, head and founder of the Urban Data Lab at ESCOM-IPN

He has led research projects projects in collaboration with Senseable City Lab-MIT BluePlanet Institute in France and Mexican Government funding by IPN, MISTI IPN-MIT, Mexican Science Minister.



The GeoForce5 Training Program has empowered us to:

Define more effective scopes for GIS projects (**Training** in GisLatam 2024).

Improve our grant writing skills to increase competitiveness in IPN and other funding opportunities (**Grant Writing**)

Enhance student-led focused on data sharing and management practices (**GeoInquiries**)

Collaboration with International GIS Expert (**GeoNetworking**)



UrbanDataLab-IPN TEAM



Applications in Mexico City Case Studies:

- Mobile monitoring of air pollution
- Monitoring accessibility and mobility of older adults in complex urban environments

Support Data Services for the IPN Community

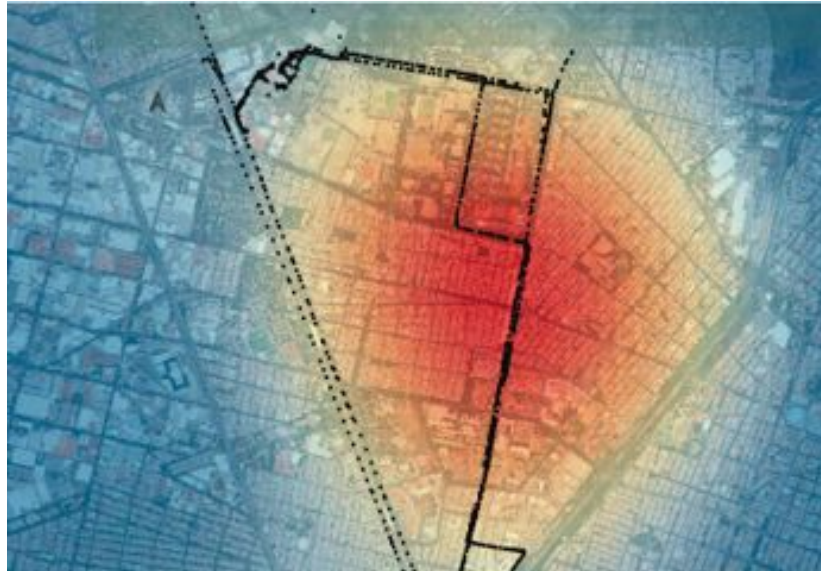
Mobile monitoring of Air Quality in Mexico City

Angel Hernández & Alexandro Ruiz (Bachelor students of IA)

- Data Collection and Management of air pollutants (PM10, CO)
- Geospatial Mapping, Visualization of pollution hotspots and spatial patterns



UrbanData-Link



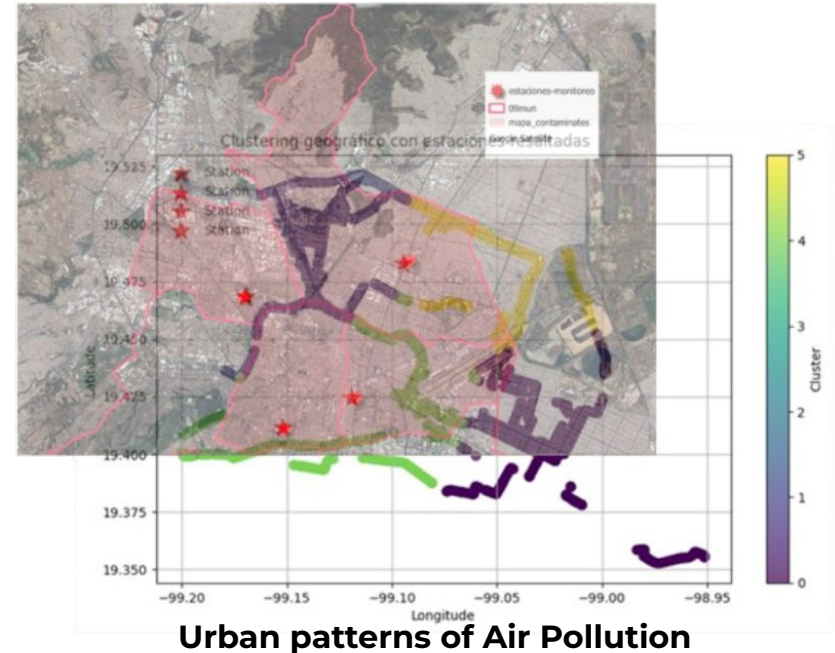
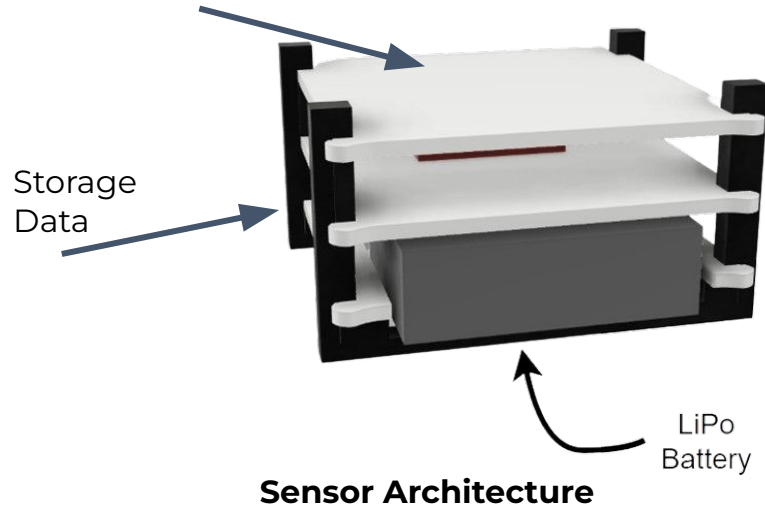
Monitoring of the IPN Campus

Part of the Project was
supported by the IPN's
Innovation Fund for
Students
.(Grant Writing)

Mobile monitoring of Air Quality in Mexico City

- Getting data from Low-Cost devices of urban monitoring
- Deployment of low-cost urban sensors
- Discovering Pollution hotspots and spatial patterns

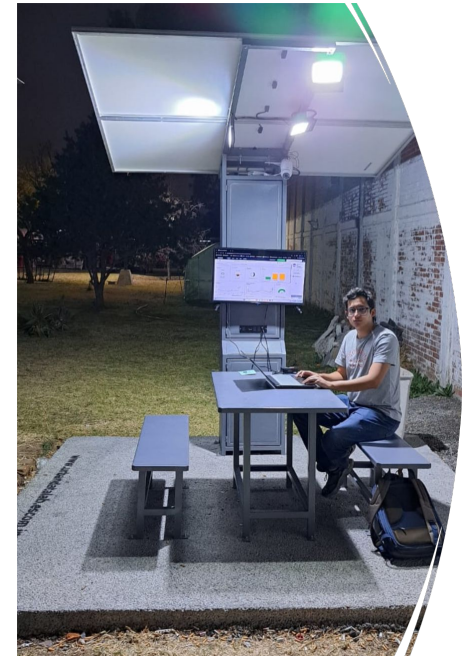
Air Quality Sensors



GeoForce5 Impact on

Mobile monitoring of Air Quality in Mexico City

- Knowledge **Exchange** in Urban Sensing & Data Analytics
- Creation of a multidisciplinary **student organization** for air quality data sharing, bringing together students from IPN and UAEMex (Biology and Geography programs)



Accessibility and Mobility of Older Adults

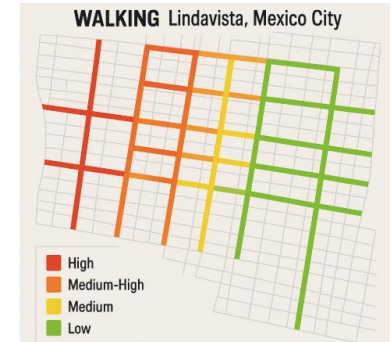
Eidan Plata & Rodrigo Trejo (Bachelor students of IA)



- 3D Mapping and Accessibility Assessment
- Mapping Sidewalk Accessibility with AI



LiDAR Model &
Urban risk mapping



GeoForce5 Impact on Accessibility and Mobility of Older Adults

Leveraging Citizen Science for Spatial Data Crowdsourcing (**GeoNetworking**)

Citizen Engagement in Urban Data Collection: participatory mapping to gather spatial data on accessibility barriers faced by older adults

Part of the Project was supported by the IPN's Innovation **Fund**

Contribuye a una ciudad más accesible

Sube una foto de tu banqueta y ayuda a identificar áreas que necesitan mejoras.



☒ Selecciona una imagen:

Sin archivos seleccionados

☒ Ubicación:

Ingresa tu dirección o selecciónala en el mapa

☒ Descripción (Opcional):

Agrega detalles adicionales

☐ Acepto los términos y condiciones

MAPA SUBIR



Azul: No hay datos
Rojo: Va muy mal



Future work: Geospatial Support Services to the **Urban Science and GIS** community in Mexico, with a focus on accessibility, inclusion, and community-driven insights.

Powerful Synergy: GeoForce 5 Collaboration Elevates Our Educational Impact

International visibility: Participation in editions of GIS LATAM Conferences and connection with global initiatives



GeoForce 5 + IPN : Methodological inspiration: Access to best practices in workshop organization, teacher training, and results-oriented approaches



Building the Future: GeoDataX Laboratory

A milestone enabled by GeoForce 5 collaboration

Slide Content:

- **Institution:** Instituto Politécnico Nacional (IPN) – UPIITA
- **Lab Focus:** Geospatial, AI, Sustainable Innovation
- **Collaboration with GeoForce 5:**
 - Inspired and guided the vision behind the lab
 - Strengthened ties with global geospatial initiatives
 - Empowered students and faculty to take on real-world challenges

Key Achievements:

- Inaugurated in September 2024
- International participation from USA, Canada, France, and Latin America
- Hosts researchers, students (GeoData Explorers), and multi-sector partners
- ***GeoDataX was born from the belief that data, when connected globally, can drive local impact.***



Validation of our educational model:
GeoForce 5 drives and validates our practical approach in laboratories such as Urban Data Lab, GeoDataX, and the Geospatial Intelligence Laboratory.





This year: from Classrooms to Smart
Campus: A Living Lab for Innovation

At IPN, teaching goes beyond the classroom.

Through our GeoDataX Lab and the new **Vertical Kiosks**, we are building a real-time, open-air laboratory that connects students with real-world environmental challenges.

What we monitor:

- **Rainwater quality**
- **Air quality**
- **Solar energy harvesting**



Students become **GeoData Explorers**, learning hands-on with data, sensors, and geospatial technologies.

This initiative nurtures a collaborative network of labs, researchers, and students

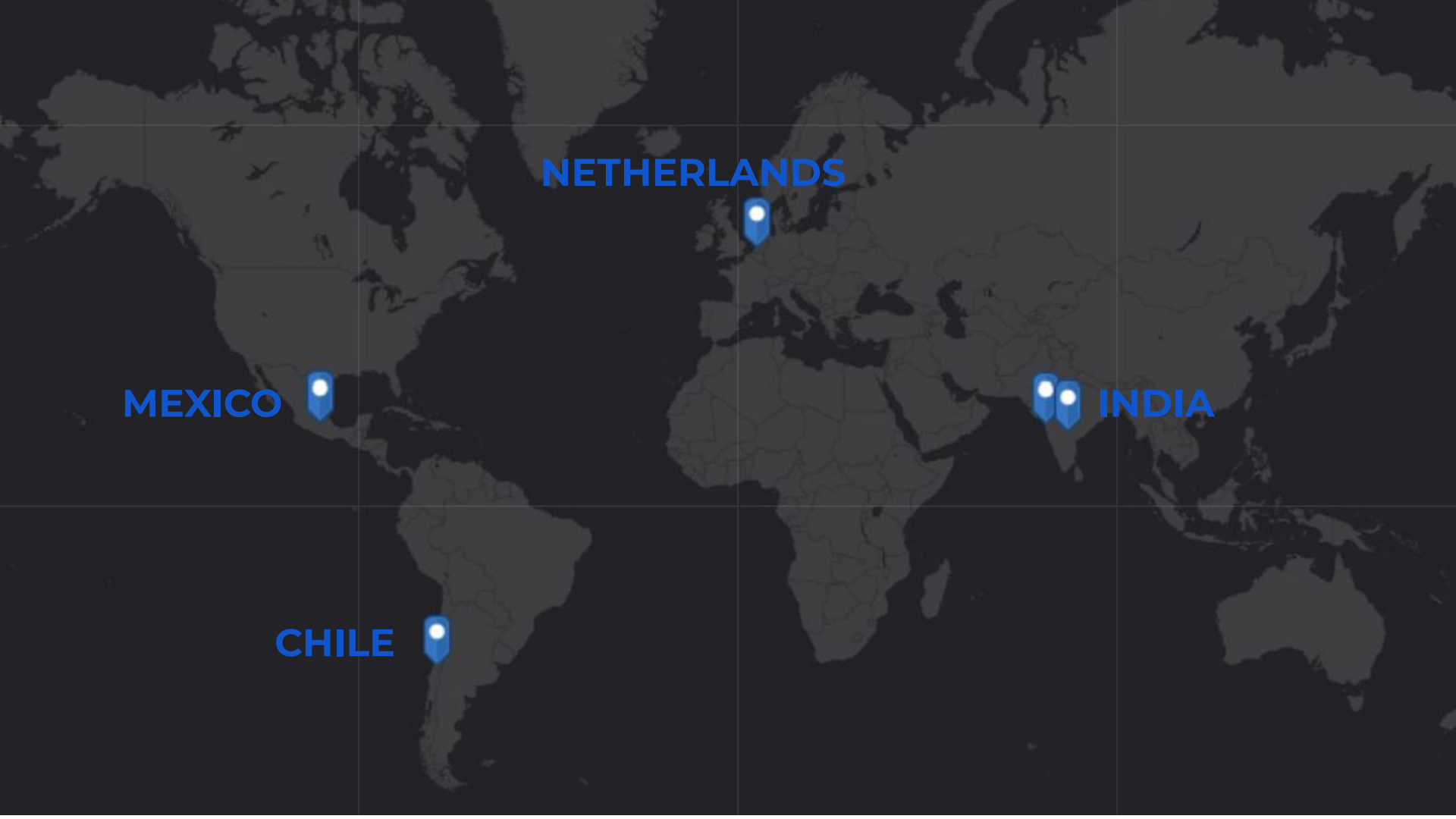
The collaboration with GeoForce 5 helped us expand our students' vision and connect our ideas with global initiatives.

It made us feel part of something bigger

Testimony of Students and Professors



How to Engage?



NETHERLANDS

MEXICO

INDIA

CHILE

Partner with GeoForce 5 for Impact

- Strategic guidance
- Peer-review of geospatial goals
- Multi-institutional collaborative events
- Partnership on grant proposals

“

Together, we aim to grow a global network of institutions committed to establishing geospatial support services that offer foundational support and a new form of capacity building for the workforce of tomorrow

”

Questions?



Join GeoForce 5 and
become a part of our
movement!