

# Luis Iván Bazán Flores

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Center for Earthquake Research and Information ♦ The University of Memphis

<https://ivabazann.github.io/>

## Education

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### Ph.D. in Geophysics

The University of Memphis - Center for Earthquake Research and Information

Memphis, TN. Current

Advisor: Christodoulos Kyriakopoulos

### M.Sc. in Geophysics

The University of Memphis

Memphis, TN. 2024

Advisor: Christodoulos Kyriakopoulos

### M.Sc. in Geophysics

University of Aberdeen

Aberdeen, UK. 2018

### B.Sc. in Geophysical Engineering

Benemérita Universidad Autónoma de Puebla

Puebla, Mexico. 2016

## Professional Experience

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### Principal Geophysicist

Resisterra

Mexico. 2018-2020

Brigade leader for near-surface data acquisition. Processing and interpretation for mining and groundwater exploration.

### Associate Geophysicist

Resisterra

Mexico. Current

Processing and interpretation for mining and groundwater exploration.

### Research Project

University of Aberdeen and Lloyd's Register

Aberdeen, UK. June - July 2018

Analysis of anomalies in high-resolution 2D seismic, caused by the presence of gas in an oilfield in the North Sea.

Calculation of gas percentage through fluid saturation analysis and inversion of Well log data. Well tie through velocity calibration and synthetic seismograms.

### Intern and B.Sc. Thesis

Mexican Petroleum Institute. Mexico

CDMX, Mexico. 2015-2016

Petro-Seismic evaluation of a Reservoir in the Salina del Istmo Basin (Mexico), using Well log and 3D seismic data.

Estimation of fluid saturation. Structural analysis of the Oilfield using 3D seismic data. Traditional Well tie using Well log and 2D/3D seismic data.

### **Water Well Drilling Assistant**

Ingeniería en Perforación Aforos y Equipamiento de Pozos de Agua Vare S.A. de C.V.

Puebla, Mexico. January – October 2014

Supervising the drilling process of shallow water wells. Quoting drilling tools and well tubing.

## **Teaching Experience**

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**Earth Processes.** Undergraduate level course taught every trimester.

Universidad Anáhuac México Online. Mexico. 2023-Current

**Geology.** Undergraduate level course taught every trimester.

Universidad del Valle de Puebla. Mexico. 2019-2020

**Physics and Mathematics.** High-school level courses.

UNICUP Xilotzingo. Mexico. 2019-2020

**TOEFL IBT and TOEFL ITP Preparation Courses.** General courses for English exams.

The House of English Puebla, Mexico. 2019-2020

## **Skills**

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### **Software/Programming**

Linux  
Windows PC  
Python  
Matlab  
Bash  
Web development  
HPC  
Numerical Modelling  
Finite Element

### **Languages**

Spanish  
English

### **Personal**

Highly motivated  
Problem solving  
Independent  
Critical thinking  
Report Writing  
Communication  
Teamwork

## **Publications**

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- Bazan Flores, L. I., C. Kyriakopoulos, D. D. Oglesby, A. J. Meltzner, T. K. Rockwell, J. M. Fletcher, & D. S. Brothers. (2024). Exploring the Dynamic Interactions between the Southern San Andreas Fault and a Normal Fault under the Salton Sea. Journal of Geophysical Research: Solid Earth. (Submitted).

## **Research Interests**

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- Fault formation and rupture evolution
- Static and dynamic fault rupture modeling

- Earthquake stress transfer and effect on magmatic systems
- Crustal deformation
- Volcanic surface deformation

## Outreach

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- Earth Day 2023: Celebrating with Advisor and middle school students, employing the Earthquake Modeling and Visualization Lab's tools, such as 3D printed models of active seismic faults in the New Madrid Seismic Zone and virtual reality googles.
- Earth Day 2022: Celebrating with Advisor and middle school students, employing the Earthquake Modeling and Visualization Lab's tools, such as 3D printed models of active seismic faults in Southern California and virtual reality googles.

## Conference Presentations

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- *Rupture Scenarios of the Southern San Andreas Fault Informed by Displacement History on Normal Faults under the Salton Sea*. B. F. Luis Iván, C. Kyriakopoulos, D. D. Oglesby, A. J. Meltzner, T. K. Rockwell, J. M. Fletcher, and D. S. Brothers. Abstract S22B-05 presented at 2023 AGU Fall Meeting, San Francisco, CA, 11-15 December 2023.
- *Rupture Scenarios of the Southern San Andreas Fault Informed by Displacement History on Normal Faults under the Salton Sea*. B. F. Luis Iván, C. Kyriakopoulos, D. D. Oglesby, A. J. Meltzner, T. K. Rockwell, J. M. Fletcher, and D. S. Brothers. Presented at NEDtalks Research Forum, University of Memphis, Memphis, TN, March 13, 2024.

## Posters

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- *Rupture Scenarios of the Southern San Andreas Fault Informed by Displacement History on Normal Faults under the Salton Sea*. Luis Iván, C. Kyriakopoulos, D. D. Oglesby, A. J. Meltzner, T. K. Rockwell, J. M. Fletcher, and D. S. Brothers. Presented at the 2024 University of Memphis Student Research Forum, Memphis, TN, March 25, 2024.
- *Static Stress Changes in Magmatic Pathways Induced by Subduction Zone Earthquakes: A Parametric Study on the Influences of Material Heterogeneities and Fault Geometry*. B. F. Luis Iván, C. Kyriakopoulos. Presented at Sepertinite, Fluids and Plate Boundary Deformation in Subduction Zones Workshop, Montreal, Canada, 1-3 March 2024.
- *Normal Fault Displacement History Provides Clues on Ruptures Along the Southern San Andreas Fault*. B. F. Luis Iván, C. Kyriakopoulos, D. D. Oglesby, A. J. Meltzner, T. K. Rockwell, J. M. Fletcher, and D. S. Brothers. Poster #108, presented at 2023 SCEC Annual Meeting, San Francisco, CA, 10-12 September 2023. (<https://central.scec.org/meetings/2023/am/poster/108>)
- *Static Stress Changes in Magmatic Pathways Induced by Subduction Zone Earthquakes, FEM Approach*. B. F. Luis Iván, C. Kyriakopoulos. Presented at the 2023 University of Memphis Student Research Forum, Memphis, TN, April 3, 2023.
- *Dynamic Interactions between the Southern San Andreas Fault and Normal Faults under the Salton Sea*. B. F. Luis Iván, C. Kyriakopoulos, D. D. Oglesby, A. J. Meltzner, T. K. Rockwell, J. M. Fletcher, and D. S. Brothers. Presented at GAGE/SAGE 2023 Community Science Workshop, Pasadena, CA, 26-29 March 2023. (<https://www.earthscope.org/app/uploads/2023/03/BazanFlores.pdf>)
- *Static Stress Changes in Magmatic Pathways Induced by Subduction Zone Earthquakes: A Parametric Study on the Influences of Material Heterogeneities and Fault Geometry*. B. F. Luis Iván, C. Kyriakopoulos. Abstract T32E-0219. Presented at 2022 AGU Fall Meeting, Chicago, IL, 12-16 December 2022.
- *Exploring the Dynamic Interactions between the Southern San Andreas Fault and Normal Faults under the Salton Sea*. B. F. Luis Iván, C. Kyriakopoulos, D. D. Oglesby, A. J. Meltzner, T. K. Rockwell, J. M. Fletcher, and D. S.

Brothers. *Poster #178*, presented at 2022 SCEC Annual Meeting, Palm Springs, CA, 11-14 September 2022. (<https://central.scec.org/meetings/2022/am/poster/178>)

- *Dynamic Interactions Between the Southern San Andreas Fault and Normal Faults in the Brawley Seismic Zone*. B. F. Luis Iván, C. Kyriakopoulos. Abstract S55D-0180. Presented online at 2021 AGU Fall Meeting, New Orleans, LA and online everywhere, 13-17 December 2021.
- *Dynamic Interactions Between the Southern San Andreas Fault and Normal Faults in the Brawley Seismic Zone*. B. F. Luis Iván, C. Kyriakopoulos, D. D. Oglesby, A. J. Meltzner, T. K. Rockwell, J. M. Fletcher, and D. S. Brothers. *Poster #146*, presented online at 2021 SCEC Annual Meeting, 12-17 September 2021. (<https://central.scec.org/meetings/2021/am/poster/146>)

## Awards and Societies

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- 2024. Certificate of Award, 2<sup>nd</sup> Place to better poster presentation in Physical and Applied Sciences. 2024 University of Memphis Student Research Forum, Memphis, TN
- 2017-2018. National CONACYT-SENER-HIDROCARBUROS 2017-03 Scholarship. Mexico
- 2017-2018. EAGE Student Chapter Treasurer. University of Aberdeen. Aberdeen, UK
- 2013-2015. AMGE-SEG Student chapter Founder and President. Benemérita Universidad Autónoma de Puebla. Puebla, Mexico
- 2013. Certificate of High Score in the CENEVAL National Examination of Communicative Competence and Critical Thinking