

# Stanford

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## Ronaldo Borja

Professor of Civil and Environmental Engineering

### CONTACT INFORMATION

- **Administrator**

Kim Vonner - Administrative Associate

**Email** [kvonner@stanford.edu](mailto:kvonner@stanford.edu)

**Tel** (650) 723-4121

### Bio

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#### BIO

Borja works in computational mechanics, geomechanics, and geosciences. His research includes developing strain localization and failure models for soils and rocks, modeling coupled solid deformation/fluid flow phenomena in porous materials, and finite element modeling of faulting, cracking, and fracturing in quasi-brittle materials.

#### ACADEMIC APPOINTMENTS

- Professor, Civil and Environmental Engineering

#### PROFESSIONAL EDUCATION

- PhD, Stanford University (1984)

#### LINKS

- <https://web.stanford.edu/~borja>: <https://web.stanford.edu/~borja>

### Teaching

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#### COURSES

##### 2023-24

- Computational Poromechanics: CEE 314 (Spr)
- Geotechnical Engineering: CEE 101C (Aut)
- Mechanics and Finite Elements: CEE 281 (Win)

##### 2022-23

- Mechanics and Finite Elements: CEE 281 (Win)
- Plasticity Modeling and Computation: CEE 315 (Spr)

##### 2021-22

- Computational Poromechanics: CEE 314 (Spr)

- Geotechnical Engineering: CEE 101C (Aut)
- Mechanics and Finite Elements: CEE 281 (Win)

#### 2020-21

- Geotechnical Engineering: CEE 101C (Aut)
- Mechanics and Finite Elements: CEE 281 (Win)
- Plasticity Modeling and Computation: CEE 315 (Spr)

### STANFORD ADVISEES

Eric Wang

#### Doctoral Dissertation Reader (AC)

Sina Abrari Vajari, Prajwal Kammardi Arunachala, Yitao Qiu

#### Orals Chair

Mark Rau

#### Doctoral Dissertation Advisor (AC)

Wei Chen, Sabrina Ip, Giancarlo Ventura, Enrique del Castillo

#### Master's Program Advisor

Shiheng Jin, Eik Chong Lee, Stephen Li, Avash Neupane, Yangqing Sun, Adiel Tauheed, Eric Wang, Daniel Zhou

#### Doctoral (Program)

Jun Geng, Sabrina Ip, Giancarlo Ventura, Hemiao Zhang

## Publications

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### PUBLICATIONS

- **Conservation laws for coupled hydromechanical processes in unsaturated porous media: Theory and implementation.** *Mechanics of Unsaturated Geomaterials*  
I., A., Borja, J.  
ISTE Ltd. and John Wiley and Sons.2010: 186–208
- **Localized and diffuse bifurcations in porous rocks undergoing shear localization and cataclastic flow.** *Computational Plasticity (Computational Methods in Applied Sciences)*  
I.  
Springer.2007
- **Foreword** *Computer Methods in Applied Mechanics and Engineering*  
Borja, R., I.  
2004; 193 (27-29): iii.
- **Consolidación elastoplástica con deformaciones finitas: Implementación con elementos finitos y ejemplos numéricos** *Revista Internacional de Métodos Numéricos para Cálculo y Diseño en Ingeniería*  
Borja, R., I., Tamagnini, C., Alarcón, E.  
1999; 15 (2): 269-296
- **Modelo de plasticidad multiaxial para arcillas sometidas a carga dinámica** *Revista Internacional de Métodos Numéricos para Cálculo y Diseño en Ingeniería*  
Montáns, F., J., Borja, R., I.  
1999; 15 (2): 169-192
- **Finite strain elastoplastic consolidation, Part 2: Finite element implementation and numerical examples** *Computer Methods in Applied Mechanics and Engineering*  
Borja, R., I., Tamagnini, C., Alarcón, E.

1998; 159: 103-122

- **Un marco matemático para la consolidación elastoplástica con deformaciones finitas** *Revista Internacional de Métodos Numéricos para Cálculo y Diseño en Ingeniería*

Borja, R., I., Alarcón, E.

1995; 3 (11): 345-381