

**Dr. Oscar Anil ISHIZAWA ESCUDERO**  
Post-Doctoral Research Associate

Carnegie Mellon University  
Civil and Environmental Engineering Department  
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September 6, 1976  
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## Education

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<b>Ecole Centrale, Paris, FRANCE</b>	<b>2006</b>
PhD Computational Mechanics and Earthquake Engineering (with honors) Thesis title: Elastodynamic scattering in random media: application to study of city-site effect Thesis advisor: Prof. Didier Clouteau	
<b>Université Pierre et Marie Curie (Paris 6), Paris, FRANCE</b>	<b>2001</b>
M.S. Soil Mechanics and Earthquake Engineering (with honors)	
<b>Université Pierre et Marie Curie (Paris 6), FRANCE</b>	<b>2000</b>
B.S. Theoretical Mechanics	
<b>Lycée Franco-Péruvien, Lima, PERU</b>	<b>1995</b>
High School Diploma	

## Complementary Education

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<b>Venice International University and European SPICE, Venice, ITALY</b>	<b>Sep. 2004</b>
<b>Seismic wave Propagation In Complex mEdia Project</b> SPICE Research and Training Workshop: Numerical methods applied to wave propagation problems	
<b>Université Pierre et Marie Curie (Paris 6), Paris, FRANCE</b>	<b>2003 - 2005</b>
Courses in Master of Applied Mathematics	
<b>Universidad Nacional Autónoma de México, MEXICO</b>	<b>Summer 2000</b>
International Summer School in Seismic Risk and Earthquake Engineering	

## Research Experience

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<b>Post-Doctoral Research Associate</b>	<b>Apr. 2006 - present</b>
Carnegie Mellon University, Pittsburgh, Pennsylvania USA Civil and Environmental Engineering Department, Computational Seismology Laboratory, under the supervision of Prof. Jacobo Bielak	
<ul style="list-style-type: none"><li>▪ Urban seismology and site effects [in collaboration with Leonardo Ramírez-Guzmán (CMU) and Dr. Jean-Paul Ampuero (ETHZ)].</li><li>▪ Wave propagation in complex and random media [in collaboration with Prof. Didier Clouteau (ECP) and Dr. Geert Lombaert (KUL)].</li><li>▪ Large scale earthquake simulation (QUAKE project at Carnegie Mellon University with SCEC CME project).</li></ul>	

PhD Candidate / Research Assistant. Ecole Centrale Paris, FRANCE Oct. 2001 - Mar. 2006

Laboratoire de Mécanique des Sols, Structures et Matériaux (LMSS-Mat), under the supervision of Prof. Didier Clouteau

French Ministry of Research Project "Natural Disaster Prevention " (ACI CatNat):

- Estimation of site effects in urban areas.
- Assessment of urbanization effects on seismic response.

European NEMISREF Project (European Commission 5th Framework Program):

- Elastic wave propagation and scattering in random media.
- Study to develop a localization device to protect existing buildings against earthquakes and traffic ground vibration.

Visiting Researcher. Universidad Nacional Autónoma de México, MEXICO Aug. - Sep. 2001

Instituto de Ingeniería, in collaboration with M.Sc. Javier Lermo and Dr. Jorge Aguirre

- Estimation of seismic hazards in urban areas using empirical Green's function method.

Masters Thesis Internship. Ecole Centrale Paris, FRANCE Feb. - Aug. 2001

Laboratoire de Mécanique des Sols, Structures et Matériaux (LMSS-Mat), under the supervision of Prof. Didier Clouteau

Elastic wave propagation in random media: earthquake engineering applications

- Waves in heterogenous and random media: elastodynamic scattering in complex media, radiative transfer, single and multiple scattering approximations, localization theory.
- Integral equations and boundary element method (BEM).

Internship. Universidad Nacional Autónoma de México, MEXICO Jul. - Sep. 2000

Instituto de Ingeniería, under the supervision of M.Sc. J. Lermo, Dr. J. Aguirre and Prof. F.-J. Sánchez-Sesma

Estimation of seismic hazards using empirical Green's function method

- Adaptation of numerical code (Aguirre and Irikura, 1997) to estimate seismic in Central Mexico hazards using empirical Green's function method
- Relocation of seismic catalog (with SEISAN software): seismicity in the Acambay grabens.
- Empirical Green's function method theory.

Internship. Universidad de Chile, CHILE Jul. - Sep. 1999

Departamento de Geofísica, under the supervision of Dr. Jaime Campos

Introduction to Seismology

- Seismic wave propagation theory.
- Relocation of seismic catalogs of Central Chile (with master-slave technique).

## Scholarships

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PhD Scholarship: Centrale Recherche S.A. and European Project NEMISREF 2001 - 2004  
(New geotechnical Methods to mitigate Seismic Risk of Existing Foundations)

## Skills

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Languages : Spanish and French – bilingual  
English - proficient

Computing : Operating systems : Unix, Linux, Windows, Mac OS.  
Programming Languages : Matlab, Fortran, LaTeX, Html.

## Invited Talks

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Department of Computer Science, Purdue University. West Lafayette, Indiana USA Nov. 8, 2006

*Multiple scattering of waves in urban regions: From mean-field model to 3D simulations.*

LGIT (Laboratoire de Geophysique Interne et Tectonophysique) Grenoble, France Mar. 31, 2005

*L'effet site-ville: D'un modèle de champ moyen aux simulations 3D.*

## Papers in Progress

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O. Ishizawa and D. Clouteau. Multiple scattering of surface waves in urban areas. (In progress)

D. Clouteau, O. Ishizawa and N. Mezher. *Numerical modeling and analysis of city-site effect.* (to be submitted)

O. Ishizawa and J. Lermo. Estimation of the seismic hazards in the Acambay-Tixmadejé fault, Mexico, using the empirical Green's function method. (in progress)

## Conference Proceedings

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O. Ishizawa, D. Clouteau and G. Lombaert. Multiple scattering of waves in random media: Application to the study of the city-site effect.

2nd Alexander von Humboldt International Conference: The Role of Geophysics in Natural Disaster Prevention, Lima, Perú. March 2007.

J. Lermo and O. Ishizawa. Estimación de la peligrosidad de la ruptura de uno de los sistemas de fallas del graben de Acambay, México.

Congreso Chileno de Sismología e Ingeniería Antisísmica, Concepción, Chile. November 2007.

G. Lombaert, D. Clouteau, O. Ishizawa, N. Mezher. The city-site effect: a fuzzy substructure approach and numerical simulations.

Proceedings of the 11th International Conference on Soil Dynamics and Earthquake Engineering (ICSDEE) and 3rd International Conference on Earthquake Geotechnical Engineering, San Francisco, USA. January 2004.

O. Ishizawa and D. Clouteau. Caractérisation théorique et numérique de l'effet site-ville: Cas de la ville de Mexico.

Sixième Colloque Nationale de l'Association Française de Génie Parasismique, Ecole Polytechnique, France. July 2003.

N. Mezher, D. Clouteau and O. Ishizawa. Modélisation numérique de l'interaction multiple sol-structures.

Actes du Sixième Colloque Nationale en Calcul des Structures (Giens, France). M. Potier-Ferry, M. Bonnet and A. Bignonnet editors. May 2003.

O. Ishizawa, D. Clouteau and N. Mezher. Theoretical and Numerical Characterization of the city-site effect: The Mexico City Case.

EGS-AGU-EGU Joint Assembly, Nice, France, April 2003. Geophysical Research Abstracts, Vol. 5, 12515, 2003.

O. Ishizawa, J. Lermo and J. Aguirre. Estimation of the seismic hazards in the Acambay-Tixmadejé fault, Mexico, using the Empirical Green's function Method.  
EGS-AGU-EGU Joint Assembly, Nice, France, April 2003. Geophysical Research Abstracts, Vol. 5, 12515, 2003.

O. Ishizawa, J. Lermo and J. Aguirre. Estimación de la peligrosidad sísmica de la posible ruptura del sistema de fallas Acambay-Tixmadejé y Venta de Bravo-Pasores, Estado de México, México.  
Actas de la Tercera Reunión Nacional de Ciencias de la Tierra, Puerto Vallarta, Jalisco, México. October 2002.

D. Clouteau, O. Ishizawa and N. Mezher. Seismic wave propagation in a random city.  
Proceedings in 7th National Conference on Earthquake Engineering, Boston, MA, USA. July 2002.

### Extracurricular Activities

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Founder and Secretary General of the Peruvian Student Association in France (ASEPEF). 2003 - 2006

### Affiliations

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American Geophysical Union (AGU).	2002 to present
Association Française de Génie Parasismique (AFPS).	2003 to present
Seismological Society of America (SSA).	2003 to present
Professional Risk Managers' International Association (PRMIA).	2005 to present

### References

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#### Jacobo Bielak

Professor, Carnegie Mellon University. Pittsburgh, PA  
jbielak@andrew.cmu.edu

#### Didier Clouteau

Professor, Ecole Centrale Paris, France  
clouteau@mssmat.ecp.fr

#### Francisco José Sánchez-Sesma

Professor, Universidad Autónoma de México, Mexico  
sesma@servidor.unam.mx

#### Pierre-Yves Bard

Ingénieur en chef des Ponts et Chaussées, LCPC-LGIT, France  
Pierre-Yves.Bard@obs.ujf-grenoble.fr

#### Denis Aubry

Professor, Ecole Centrale Paris, France  
aubry@ecp.fr