
SAMUEL YNIESTA

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AREAS OF EXPERTISE

Geotechnical Earthquake Engineering, Geomechanics, Constitutive Modeling, Soil Dynamics, Critical State Soil Mechanics, Numerical Simulations, Stability of Levees, Centrifuge Testing

EDUCATION

University of California, Los Angeles (UCLA) Los Angeles, CA	Ph.D. in Civil and Environmental Engineering <u>Major:</u> Geotechnical Earthquake Engineering <u>Super Minor:</u> Structural Engineering <u>Advisors:</u> Scott Brandenburg and Jonathan Stewart <u>Dissertation:</u> Numerical Modeling of Levees atop Peaty Organic Soil under Earthquake Loading	Expected February 2016
	M.S. in Civil and Environmental Engineering <u>Major:</u> Geotechnical Earthquake Engineering	2012
Ecole Spéciale des Travaux Publics (ESTP) Paris, France	M.S. in Civil Engineering <u>Major:</u> Public Works	2012
Université Claude Bernard Lyon 1 – Institut Universitaire de Technologie A Villeurbanne, France	D.U.T. (Technical University Diploma) in Civil Engineering (2-year Degree) <u>Major:</u> Public Works	2009

PROFESSIONAL CERTIFICATIONS

Engineer In Training - State of California - Certificate No. EIT 156198

Title of Graduate Engineer (2012) conferring the right to practice as an engineer in France – French National Commission on Engineering Degrees (CTI)

PUBLICATIONS AND PRESENTATIONS

Journal Publications:

Yniesta, S., Lemnitzer, A., Cappa, R., and Brandenburg, S.J. (2015) "Vacuum Pluviation Device for Saturating Sand" *Geotechnical Testing Journal*, 38 (3), 355-360

Lemnitzer, A., Cappa, R., **Yniesta, S.** and Brandenburg, S.J. "Centrifuge Testing of Model Levees atop peaty soils: experimental data". *Earthquake Spectra* (accepted for publication)

Yniesta, S., Brandenburg, S.J., "Stress-Ratio-Based Interpretation of Modulus Reduction and Damping Curves" *Journal of Geotechnical and Geoenvironmental Engineering* (under review)

Yniesta, S., Brandenburg, S.J., and Shafiee A. "One-dimensional Non-linear Model for Ground Response Analysis" *Soil Dynamics and Earthquake Engineering* (under review)

Publications in Preparation:

Cappa, R., **Yniesta, S.**, Lemnitzer, A. and Brandenburg, S.J "Cyclic and Post-Cyclic Behavior of Levees atop Peaty Organic Soils during Centrifuge Testing" *Journal of Geotechnical and Geoenvironmental Engineering*

Yniesta, S., Brandenburg, S.J., Stewart J.P. "A Visco-Plastic Constitutive Model for Peaty Organic Soils" *International Journal of Geomechanics*

Conference Papers:

- Yniesta, S.**, and Brandenburg, S.J. "Unloading Reloading Rule for a One-dimensional Non-linear Model for Site Response Analysis" *Proceedings, 6th International Conference on Earthquake Geotechnical Engineering (6ICEGE)*, Christchurch, New Zealand, November 1-4, 2015 (accepted for publication)
- Cappa, R., **Yniesta, S.**, Brandenburg, S.J and Lemnitzer, A. "Settlements and excess pore pressure generation in peaty soils under embankments during cyclic loading" *Proceedings, 6th International Conference on Earthquake Geotechnical Engineering (6ICEGE)*, Christchurch, New Zealand, November 1-4, 2015
- Cappa, R., **Yniesta, S.**, Lemnitzer, A., Brandenburg, S. and Shafiee, A. (2015). "Settlement Estimations of Peat during Centrifuge Experiments" *Proceedings, International Foundations Congress and Equipment Exposition (IFCEE)*, San Antonio, Texas, March 17-21, 2015
- Yniesta, S.**, Cappa, R., Lemnitzer, A. and Brandenburg, S. (2015). "Centrifuge Testing of Levees: Saturation Techniques during Model Construction" *Proceedings, International Foundations Congress and Equipment Exposition (IFCEE)*, San Antonio, Texas, March 17-21, 2015
- Cappa, R., **Yniesta, S.**, Lemnitzer, A., Brandenburg, S.J., and Stewart, J.P. (2014). "Centrifuge Experiments to Evaluate the Seismic Performance of Levees on Peaty Soils in the Sacramento-San Joaquin Delta" *Proceedings, Dam Safety Conference*, San Diego, CA, September 21-25, 2014

Data Reports:

- Cappa R., **Yniesta S.**, Brandenburg S.J., Lemnitzer A., Stewart J.P. (2014). Averting an Impending Disaster. Data Report for Centrifuge Experiments 12L and 13L. *Data report for NEES* https://nees.org/groups/nees_2012_1161
- Cappa R., **Yniesta S.**, Brandenburg S.J., Lemnitzer A., Stewart J.P. (2014). Averting an Impending Disaster. Data Report for Centrifuge Experiments 14L and 15L. *Data report for NEES* https://nees.org/groups/nees_2012_1161

Presentations and Posters (Presenters are underlined):

- Yniesta, S.**, and Brandenburg, S.J. "Unloading Reloading Rule for a One-dimensional Non-linear Model for Site Response Analysis" *6th International Conference on Earthquake Geotechnical Engineering (6ICEGE)*, Christchurch, New Zealand, November 1-4, 2015
- Yniesta S.**, Cappa R., Brandenburg S.J., Lemnitzer A., "Centrifuge Testing of Levees: Saturation Techniques during Model Construction." *Geocongress, San Antonio TX, March 19th 2015*
- Yniesta S.** "Soil Modeling in Site Response Analysis". *Geotech Round Table, UCLA, February 25th 2015*
- Yniesta S.**, Cappa R., Tsai Y., Shafiee A., Brandenburg S.J., Stewart J.P. (2015). "Levees and Earthquakes: Averting an Impending Disaster." *Poster presentation, Technical Forum, UCLA, 2015*
- Yniesta S** "Centrifuge Experiments to Investigate Levee Deformation Potential in the Sacramento San Joaquin Delta." *Presentation to the Department of Water Resources, Sacramento CA, October 23rd 2014*
- Cappa R. **Yniesta S.**, (2014). "Centrifuge Experiments to Evaluate the Seismic Performance of Levees on Peaty Soils in the Sacramento San Joaquin Delta." *ASDSO Conference, San Diego CA, September 23rd 2014*
- Yniesta S.**, Cappa R. (2014). "Centrifuge Experiments to Investigate Levee Deformation Potential in the Sacramento San Joaquin Delta." *CalGeo Expo, UCLA, May 30th 2014*
- Lemnitzer A., Cappa R., **Yniesta S.**, Brandenburg S., Schmutte C. (2014). "Centrifuge Experiments to Investigate Levee Deformation Potential in the Sacramento San Joaquin Delta." *ASCE Geoinstitute, San Diego CA, May 28th 2014*
- Yniesta S.**, Cappa R., Brandenburg S.J., Lemnitzer A., Stewart J.P. (2014). "NEESR: Levees and Earthquakes: Averting an Impending Disaster." *Poster Presentation Northridge Earthquake Symposium, Los Angeles CA, 2014*
- Brandenburg S.J., Stewart J.P., Kwak D., Reinert T., Shafiee A., **Yniesta S.** (2013). "Seismic Performance of Levees. Poster Presentation" *Technical Forum, UCLA, 2013*

Curated Datasets:

Cappa R., **Yniesta S.**, Brandenburg S.J., Stewart J.P., Lemnitzer A. (2014). "TEST 12L - RCK01: Part 1 - 9m radius centrifuge experiment on clayey levee behavior under ground motions", Network for Earthquake Engineering Simulation (distributor), Dataset, DOI:10.4231/D34M91B6S

Cappa R., **Yniesta S.**, Brandenburg S.J., Stewart J.P., Lemnitzer A. (2014). "TEST 13L - RCK01: Part 2 - 9m radius centrifuge experiment on sandy levee behavior under ground motion", Network for Earthquake Engineering Simulation (distributor), Dataset, DOI:10.4231/D30V89J2N

Cappa R., **Yniesta S.**, Brandenburg S.J., Stewart J.P., Lemnitzer A. (2014). "TEST 14M - RCK02 : Part 1 - 9m radius centrifuge experiment on clayey levee behavior under ground motions", Network for Earthquake Engineering Simulation (distributor), Dataset, DOI:10.4231/D3W37KW7Z

Cappa R., **Yniesta S.**, Brandenburg S.J., Stewart J.P., Lemnitzer A. (2014). "TEST 15M - RCK02 : Part 2 - 9m radius centrifuge experiment on sandy levee behavior under ground motions", Network for Earthquake Engineering Simulation (distributor), Dataset, DOI:10.4231/D3RB6W337

RESEARCH EXPERIENCE

Graduate Student Researcher, University of California Los Angeles (Sept. 2012 - Present)

PI: Professor Scott Brandenburg

NEESR funded research project: "Levees and Earthquakes: Averting an Impending Disaster"
NSF# 1208170 (\$651,000)

Development of 3-D Constitutive Model for Peat

Sept. 2012 - Present

- Create a constitutive model for organic soils, which has never been done before
- Develop a formulation that captures the dynamic behavior of peat during an earthquake, including post-cyclic volume change potential, a mechanism never considered in constitutive models before
- Validate the model against centrifuge, field tests and lab tests
- Implement the model in FLAC for use by practitioners

Development of a Nonlinear 1D Constitutive Model for Site Response

Sept. 2012- Dec. 2014

- Developed a model that can be used to measure the response of a column of soil to an input ground motion
- Created a formulation that can match any set of modulus reduction and damping curves
- Implemented a formulation that does not use frequency dependent Rayleigh damping nor a hyperbolic backbone curve

Four Large Centrifuge Tests:

Sept. 2013 - Apr. 2014

- Planned and designed four centrifuge tests to study the seismic failure potential of levees in the Sacramento-San Joaquin Delta
- Built four models of a levee on top of peat with various configurations
- Solved problems related to the construction of the model such as large initial settlement, low initial strength of the foundation soil, creation of a reservoir on one side of the levee

Creation of a Device to Saturate Levee Fill:

Sept. 2012-Aug. 2013

- Created a novel device to saturate sand for centrifuge applications
- Validated the method with various techniques to evaluate saturation
- Presented the method in a journal publication and during the Geocongress 2015 in San Antonio

WORK EXPERIENCE (SELECTED)

Teaching and Mentoring Experience:

University of California, Los Angeles – Department of Civil and Environmental Engineering **April. 2015 - June 2015**
Teaching Assistant (CEE123 Advanced Geotechnical Design)

- Organize and animate weekly discussions
- Develop the course material and assignments
- Grade homeworks and the final project

University of California, Los Angeles – Department of French and Francophone Studies **Sept. 2011 - June 2013**
Teaching Assistant (6 quarters)

- In charge of one class of about 25 students per quarter
- Taught one hour a day, five days a week for ten-week quarters
- Prepared all lesson plans, class activities and exams

University of California, Los Angeles – Department of Civil and Environmental Engineering **Jan. 2012 - June 2012**
Supervised 2 undergraduates students in the lab (2 quarters)

- Developed a testing program
- Taught the students how to use the different devices
- Supervised them on the research project

Engineering-related Work Experience:

SOGEA TPI, Chevilly-Larue, France **May 2011 - Aug.2011**
Assistant to the Construction Manager (3 months)

- Managed the construction of a portion of the extension of the tramway line T3 in Paris
- Directed 10 workers on the site
- Replaced the Construction Manager for 3 weeks: managed workers and interacted with the subcontractors, the suppliers and the project manager
- Used Autocad to solve technical problems and present solutions to the project manager
- Organized a complete schedule of the site until the end of the construction using Microsoft Project

Groupe J, Rillieux-La-Pape, France **June 2010 - July 2010**
Geotechnical Engineering Intern (8 weeks)

- Performed Field Testing: inclinometers, verification of soil nails, in-situ compaction evaluation, pressuremeter and penetrometer tests
- Conducted Lab Testing: Atterberg Limits, grain size distribution, triaxial tests, consolidation tests, Proctor
- Performed several numerical simulations to solve slope stability problems for embankments in a large railroad project (TGV, a high-speed train in eastern France)
- Implemented alternative solutions when slopes were found to be unstable
- Documented the analysis in technical reports

Forézienne d'Entreprises, Saint-Etienne, France **June 2009 - Aug 2009**
Quantity Surveyor Intern (9 weeks)

- Analyzed the invitation to tender for road construction projects, looked for cost-efficient alternative solutions
- Negotiated with potential subcontractors and potential suppliers
- Calculated the cost and helped preparing the response to the call to tender on several projects
- Prepared the response to the call to tender: schedule, crew, material, for a \$300,000 project

SERVICE

Scholarly review for:

- Geocongress 2015 (IFCEE2015)
- Computer and Geotechnics (Elsevier)

Member of the Geo-Institute Graduate Student Organization at UCLA

Apr. 2013 - Present

- Coordinated roundtables three times per quarter where a student presents his research to the geotechnical group at UCLA
- Organized quarterly geotechnical social events for both students and professors

Project Manager at the Student Association: Junior Enterprise of the Ecole Spéciale des Travaux Publics (Junior ETP)

Mar. 2010 - Mar. 2011

- Planned short term projects for private clients
- Negotiated contracts with clients, up to \$25,000
- Hired and managed teams of students to complete short term projects
- Oversaw a total of 15 projects, for a turnover of more than \$130,000
- Trained the new team through short courses

AFFILIATIONS

American Society of Civil Engineers (ASCE) –Student Member
Earthquake Engineering Research Institute (EERI) – Student Member
United States Society on Dams (USSD) – Student Member
UCLA Calgeo Student Chapter– Member
Geo-Institute Graduate Student Organization - Member

SKILLS

Computer Skills:

Programming Languages:

Visual Basic, C++ (beginner)

Geotechnical Engineering Software:

Phase 2.0, Slide, FLAC, , OpenSees

Microsoft Office and Other Software:

Excel, Powerpoint, Project, Word, Expression Web, Autocad, Grapher, Matlab, Mathcad

Interested in Learning:

Plaxis, JAVA, HTML, Database Software

Languages:

English – Fluent

French – Native

Italian – Proficiency in reading and writing

AWARDS

Itasca Mentorship Program (2015)

National Federation of Public Works Scholarships (2010, 2011 and 2012) – Fédération Nationale des Travaux Publics (FNTP)

Alumni Association of the Ecole Spéciale des Travaux Publics (ESTP) scholarships (2010 and 2011) – SID-ETP

National Scholarship for Excellence (2003-2006) - Bourse au Mérite