Curriculum Vitae
(September 2010)

Mathieu NUTH, Ph.D.

Department of Civil Engineering
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PERSONAL DATA

Born:	December 10th 1981
Citizenship:	French, of French-Cambodian origin
Civil status:	Married, 1 child
Private address:	4825 Rue Yamaska, Sherbrooke (QC) J1L2K6, Canada

CURRENT MISSION

Assistant Professor in the geotechnical and geo-environmental group, specialized in geotechnical engineering and finite element modelling.

FIELDS OF RESEARCH

Geomechanical modelling of oil and gas reservoirs.
Interactions between structures, soils and environment.
Prediction and management of natural hazards.
Thermo-hydro-mechanical modelling of heat exchanger piles.
Constitutive modelling of unsaturated soils: finite element modelling and numerical simulation of earthdams and landslides.
Experimental characterization of the soil water retention behaviour and hydro-geomechanical couplings.

EDUCATION

March 2009	PhD. thesis, Ecole Polytechnique Fédérale de Lausanne (CH), 'Constitutive modelling of unsaturated soils with hydro-geomechanical couplings'. Supervisor Prof. Lyesse Laloui. Funded by: Swiss Competence Center Environment and Sustainability.
2004	Engineer diploma (M.Sc.) Ecole Centrale Nantes (F) – with honors (*'Mention Bien'*). Civil engineering and environment.
April – Sept. 2004	Master thesis, Ecole Polytechnique Fédérale de Lausanne (CH), 'Numerical modelling of heat exchanger piles'.

EDUCATION (CONTINUED)

2001-2004	Undergraduate student at Ecole Centrale Nantes - Civil engineering and environment, 'Construction' section.
1999-2001	Preparatory courses to Schools of Engineers, Physics & Technology. Angers (F).
1999	Scientific French Baccalauréat, with honors (*'Mention Très Bien'*).

POSITIONS

Since sept. 2010	Adjunct professor, Department of Civil Engineering, Faculty of engineering, Université de Sherbrooke.
2009-2010	Post-doctoral researcher, Soil Mechanics Laboratory, Ecole Polytechnique Fédérale de Lausanne EPFL (CH). Research projects : - Triggering of rapid mass movements (Swiss Competence center environment and sustainability). Deputy manager. - Alternative buffer material (Swiss National Cooperative for the Disposal of Radioactive Waste). Project manager.
2005-2010	Lecturer and teaching assistant for Civil Engineering section at EPFL. Courses taught: - Constitutive modelling of unsaturated soils – Lecturer (ALERT O. Zienkiewicz course, EPFL), level: post-graduate. - Geotechnical dimensioning of earthdams - Lecturer (Fachleute Naturgefahren Schweiz), level: post-graduate. - Geomechanics - Co-lecturer, assistant (EPFL), level: Master Sc. - Underground seepage - Substitute lecturer, assistant (EPFL), level: Bachelor Sc. - Environmental Geomechanics – Assistant (EPFL), level: post-graduate. - Seepage and consolidation in tunnelling – Assistant (EPFL), level: post-graduate. - Mechanics of porous media – Assistant (EPFL), level: post-graduate. Supervisor of Master theses of: - Mr. Maxime Blanchard (Ecole Centrale Nantes, F): 'Experimental characterization of the behaviour of fine-grained soils at low temperatures. - Mr. Adel Yousfi (INSA Strasbourg, F): 'Mechanical behaviour of unsaturated, compacted granular materials under cyclic loads'. - Mr. Anas Akry (EPF Lausanne, CH): 'Conception and dimensioning of earth dams for supply of drinking water in the region of Tamanrasset, Algeria'. Supervisor of 6 trainees (3 to 5 months work placements at EPFL).
December 2003	Participant to Bouygues Construction Challenge (F).
June- Sept 2003	Field engineering training period – 'GTB Construction' Bouygues, Angers (F). Housing building operation.
June- Aug. 2002	Programmer, database managing – Vecteur Plus, computer services, Phnom Penh, Cambodia.
2001-2002	Visitors' technical guide – Arcelor Packaging Basse-Indre (F)

HONORS AND AWARDS

December 2009	The article "Effective Stress Concept in Unsaturated Soils: Clarification and Validation of an Unified Framework" (M. Nuth and L. Laloui) is the top most cited paper of the International journal for numerical and analytical methods in geomechanics in year 2009. May 2010: cited 31 times (ISI).
October 2009	Chorafas 2009 award for the best PhD thesis in the category "Sustainability".
January 2008	2 articles ranked in the "Top 25 hottest articles" of the Journal Computers and Geotechnics: "Advances in modelling hysteretic water retention curve in deformable soils" by M. Nuth and L. Laloui and "On the use of the generalised effective stress in the constitutive modelling of unsaturated soils" by L. Laloui and M. Nuth
June 2008	Best young researcher in Civil Engineering – AUGC René Houpert Prize, French association for civil engineering.
June 2006	Best poster award of EPFL PhD Students Day 2006 : "Unified stress framework for advanced constitutive modelling of unsaturated soils"

OTHER MISSIONS

Reviewer	Internationational journal for numerical and analytical methods in geomechanics
	Computational materials science

LANGUAGES

French	Mother tongue
English	Fluency. *First Certificate* of Cambridge University
Spanish	Read, written, spoken. *Diploma Basico de Español*

COMPUTER TOOLS

Programming	C/C++, Fortran, Visual Basic
Modelling	Petal, Cesar LCPC, Algor/Superdraw3, GefDyn, GID, ZSoil, Lagamine
Database	MySQL, Access
Internet	Jahia, Typo3, Flash
Graphics	3D Studio, Photoshop, Première, After effects, In Design

PUBLICATIONS

See appended list

MISCELLANEOUS

Co-founder of a theatre troupe. Vocal coach, coach for stage technique and movement.

List of publications
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Remark: the publications preceded by an asterisk (*) have received a distinction, see section "honors and awards" in the appended curriculum.

PEER-REVIEWED JOURNAL PAPERS

Nuth M., Laloui L., Schrefler B.A., "Analysis of compaction phenomena due to water injection in reservoirs with a three-phase geomechanical model". Journal *of Petroleum Engineering*, 2010, vol. 73, 2010, p. 33–40

Laloui L., **Nuth M.** "Response to Comment on "On the use of generalised effective stress in the constitutive modelling of unsaturated soils"". *Computers and Geotechnics*, vol. 36, 2009, p. 1362-1363.

*** Nuth M.**, Laloui L., "Advances in modelling hysteretic water retention curve in deformable soils", *Computers and Geotechnics*, 2008, vol 35, issue 6, p 835-844.

* Laloui L., **Nuth M.,** "On the use of the generalised effective stress in the constitutive modelling of unsaturated soils". *Computers and Geotechnics*, 2008, vol 36, issue 1-2, p 20-23.

*** Nuth M.**, Laloui L., "Effective Stress Concept in Unsaturated Soils: Clarification and Validation of an Unified Framework". *Int. Journ. of Numerical and Analytical Methods in Geomechanics*, no 32, 2008, p. 771-801.

Nuth M., H. Peron, L. Laloui. Intelligent realisation of ground energy. *GeoDrilling International*, no 141 April 2008, p. 28-29.

Nuth M., Laloui L., "Unified stress framework for modelling unsaturated subsoil behaviour". *Int. Journal of Road Materials and Pavement Design*, no 8(4)2007, p. 767-781.

Laloui L., **Nuth M.,** "Numerical Modeling of Some Features of Heat Exchanger Pile". In *ASCE Geotechnical Special Publication: Foundation analysis and design-Innovative methods*, 2006 p. 189-194.

Laloui L., **Nuth M.**, Vulliet L., "Experimental and numerical investigations of the behaviour of a heat exchanger pile". *International Journal for Numerical and Analytical Methods in Geomechanics*, vol. 30, no 8 2006 p. 763-781.

Laloui L., **Nuth M.,** "An introduction to the constitutive modelling of unsaturated soils", *European Journal of Civil Engineering*, vol. 9, no 5-6 2005 p. 651-670.

Laloui L., **Nuth M.,** "Numerical modelling of the behaviour of a heat exchanger pile". *European Journal of Civil Engineering*, vol. 9, no 5-6 2005 p. 827-839.

Accepted :
D'Onza F., Gallipoli D., Wheeler S., Casini F. , Vaunat J., Khalili N., Laloui L., Mancuso C., Masin D., **Nuth M**., Pereira J.-M., Vassallo R. "Benchmarking different approaches to constitutive modelling of unsaturated soils", *Geotechnique*, 2011.

CONFERENCE PROCEEDINGS

Nuth M., Laloui L., Schrefler B. "Description of subsidence phenomena due to gas extraction in deep layers with advanced three-phase constitutive model". GEO2010, Bahrain.

Péron H., Salager S., **Nuth M.**, Marschall P., Laloui L. "Analysis of the swelling pressure development in opalinus clay – experimental and modelling aspects". In: Proceedings of the 2nd Int. Conf. on Fault and top seals, 2009, p. 56-58.

Silvani C., **Nuth M.**, Laloui L., Peron H. "Understanding the thermo-mechanical response of heat exchanger piles". In: Proceedings of the First International Symposium on Computational Geomechanics, 2009, p. 589-596

Nuth M., Laloui L., "Investigations on the mechanical behavior of a heat exchanger pile". 5th International Symposium on Deep Foundations on Bored and Angered Piles (BAP V), Ghent, Belgium, 2008.

Nuth M. Un nouveau cadre constitutif couplé pour la modélisation avancée des sols non saturés: XXVèmes Rencontres AUGC, 2008 XXVèmes rencontres AUGC, Nancy, June 4-6, 2008.

Nuth M., Laloui L., "New insight into the unified hydro-mechanical constitutive modeling of unsaturated soils". IWUS08 Trento 2008, (in press).

Nuth M., Laloui L., "Advanced hydro-mechanical coupling for unified constitutive modelling of unsaturated soils". In 1st European Conference on Unsaturated Soils. CRC Press 2008.

Laloui L., François B., **Nuth M.**, Péron H., and Koliji A., "A thermo-hydro-mechanical stress-strain framework for modeling the performance of clay barriers in deep geological repositories for radioactive waste". In 1st European Conference on Unsaturated Soils. CRC Press 2008.

François B., **Nuth M.**, Laloui L., "Mechanical constitutive framework for thermal effects on unsaturated soils". In Numog X 2007, p. 9-13.

Nuth M., Laloui L., "New insight into the unified hydro-mechanical constitutive modeling of unsaturated soils". *Invited lecture* In: *Proc. of the 3 rd Asian Conference on Unsaturated Soils.* 2007, p. 109-126.

Nuth M., Laloui L., "Implications of a generalized effective stress on the constitutive modelling of unsaturated soils". In: *Mechanics of unsaturated soils, Weimar*, Germany 2007, p 75-82.

BOOK CHAPTERS

Laloui L., **Nuth M.**, François B. “Mechanics of unsaturated soils”. In: *Mechanics of unsaturated geomaterials*. 2010 (In press).

Eichenberger J., **Nuth M.**, Laloui L. “Modelling landslides in partially saturated slopes subjected to rainfall infiltration”. In: *Mechanics of unsaturated geomaterials*. 2010 (In press).

Laloui L., **Nuth M.,** Vulliet L. “Experimental and numerical investigations of the behaviour of a heat exchanger pile”. In: *Ground Improvement - Case Histories*. Elsevier 2005.

PH.D. THESIS

*** Nuth M.,** Constitutive modelling of unsaturated soils with hydro-geomechanical couplings, EPFL, Lausanne, 2009.