

## PERSONAL DATA



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## CURRENT APPOINTMENT

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Assistant Professor of Geotechnical Engineering, University of Nottingham, United Kingdom

## SUMMARY

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Dr Rezania has over 15 years experience of work and research in geotechnical and geoenvironmental engineering. Currently an Assistant Professor at Department of Civil Engineering of the University of Nottingham, he previously held academic and professional positions at different institutions and companies including University of Portsmouth, University of Strathclyde, University of Exeter and SDS Ltd. in the UK, Aalto University in Finland and PLAXIS b.v. in the Netherlands. He has worked on quantifying the response of different geomaterials and characterization of their fundamental inherent features, such as anisotropy, initial structure and viscosity, based on which he has developed predictive models that can be used for efficient performance-based design (PBD) in in geotechnical engineering. He has worked on a range of different practical geotechnical problems involving liquefaction, embankments, natural slopes, dams, piles, shallow foundations, suction caissons, drainage systems, lifelines and mines.

## RESEARCH & INDUSTRIAL EXPERTISE

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Dr Rezania's main expertise is on:

- Geohazard prediction and mitigation in particular regarding landslides and soils prone to creep
- Natural soils property evaluation and characterization
- Advanced numerical modelling and geotechnical PBD
- Problematic soft clays and sands
- Sustainable drainage solutions
- Soft Ground Stabilization
- Slope Stabilisation and Earth Retaining Structures
- F.E.M. / F.E.A. Modelling

- Deep Foundation complex solutions
- Tunnelling Optimisation

## SELECTED PUBLISHED WORKS

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1. **Rezania**, Taiebat, and Poletti. 2016. A viscoplastic SANICLAY model for natural soft soils. *Computers and Geotechnics*.
2. **Rezania**, Mousavi Nezhad, Zanganeh, Castro and Sivasithamparam. 2016. Modelling pile setup in natural clay deposit considering soil anisotropy, structure and creep effects: case study. *International Journal of Geomechanics*.
3. Sivasithamparam and **Rezania**. 2016. The comparison of modelling inherent and evolving anisotropy on the behaviour of a full-scale embankment. *International Journal of Geotechnical Engineering*.
4. Ma, Miao, Bai, Wang, **Rezania**, Huang, and Qian. 2016. Seepage properties of crushed coal particles. *Petroleum Science and Engineering*.
5. **Rezania**, Nguyen, Zanganeh and Taiebat. 2016. Modelling the behaviour of a case study embankment on PVD-improved soft soil using an anisotropic viscoplastic model. Embankment and Footing Prediction Symposium, Newcastle, Australia.
6. **Rezania**, Zanganeh and Taiebat. 2016. Numerical modeling of natural soft soil using a robust rotational hardening law. GeoVancouver 2016, Vancouver, Canada.
7. Karstunen, **Rezania**, Sivasithamparam and Yin. 2015. Comparison of anisotropic rate-dependent models for modelling consolidation of soft clays. *International Journal of Geomechanics*.
8. Bagheri, **Rezania** and Mousavi Nezhad. 2015. An experimental study of the initial volumetric strain rate effect on the creep behaviour of clays. IOP Conf. Series: Earth and Environmental Science.
9. Gironacci, Mousavi Nezhad and **Rezania**. 2015. Modelling of crack propagation on brittle heterogeneous materials. 23rd ACME Conf. on Computational Mechanics, Swansea, UK.
10. **Rezania**, Sivasithamparam and Mousavi Nezhad. 2014. On the stress update algorithm of an advanced critical state elasto-plastic model and the effect of yield function equation. *Finite Elements in Analysis and Design*.
11. **Rezania**, Dejaloud and Mousavi Nezhad. 2014. An anisotropic constitutive model for cyclic loading of soft clays. 22nd ACME Conf. on Computational Mechanics, Exeter, UK.
12. **Rezania**, Dejaloud and Mousavi Nezhad. 2014. SCLAY1S-BS: an anisotropic model for simulation of cyclic behaviour of clays. Geomechanics from Micro to Macro, Cambridge, UK.
13. Karstunen, **Rezania** and Sivasithamparam. 2013. Comparison of anisotropic rate-dependent models at element level. Constitutive Modeling of Geomaterials, Springer Series in Geomechanics and Geoengineering.
14. **Rezania**. 2012. Viscoplastic modelling of soft clays considering the effect of anisotropy and destructuration. 12th BGA Young Geotechnical Engineers' Symposium, Leeds, UK.
15. **Rezania**, Bonnier, Brinkgreve and Karstunen. 2012. Non-local regularisation of Drucker-Prager softening model. 20th ACME Conf. on Computational Mechanics, Manchester, UK.
16. Mousavi Nezhad, Javadi and **Rezania**. 2011. Modeling of contaminant transport in soils considering the effects of micro- and macro-heterogeneity. *Hydrology*.
17. Jafarian, Baziari, **Rezania** and Javadi. 2011. Probabilistic evaluation of liquefaction potential in field condition; A kinetic energy approach. *Engineering Computations*.
18. **Rezania**, Faramarzi and Javadi. 2011. An evolutionary based approach for assessment of earthquake-induced soil liquefaction and lateral displacement. *Engineering Applications of Artificial Intelligence*.
19. **Rezania**, Javadi and Giustolisi. 2010. Evaluation of liquefaction potential based on CPT results using evolutionary polynomial regression. *Computers and Geotechnics*.
20. Javadi and **Rezania**. 2009. Intelligent finite element method: An evolutionary approach to constitutive modelling. *Advanced Engineering Informatics*.