Geotechnical Consulting Group

Dr Riccardo Scarfone

Dott. Ing. PhD CEng MICE

Principal Engineer

Proven experts in a geotechnical world

Professional summary

Dr Riccardo Scarfone is a geotechnical engineer with 11 years of experience in research and industry, with particular emphasis on slope stability, unsaturated soils, seismic soil-structure interaction, piling, mining waste embankments, and numerical modelling. He has a special interest in modelling advanced multi-phase and multi-physics phenomena involved in soil-atmosphere interaction, with particular application to Capillary Barrier Systems employed for slope stability purposes.

Education and Career

Since March 2020: GCG, London

2016-20: PhD, University of Glasgow, UK

2014-16: Laurea Magistrale (equivalent MSc) in Civil Engineering, University of Rome Tor Vergata

2010-14: Laurea (equivalent BSc) in Civil and Environmental Engineering, University of Rome Tor Vergata

Scholarships / Awards

2021: Finalist of the BGA Cooling Prize competition 2021

2016: Marie Skłodowska-Curie Early-Stage Researcher PhD studentship sponsored by European Commission

2016: ReLUIS Research Fellowship

2007: Winner of school Math Olympic games

Service on technical / professional bodies

2023 – 2025: Training Officer of the BGA Early Carrer Group committee

Since 2019: Reviewing technical papers for Géotechnique and other international journals

Memberships

Since 2020: Chartered Member of the Italian Institution of Civil Engineers

Experience with GCG

Dr Scarfone is a chartered engineer who joined GCG in March 2020. Since then, he has been involved in a wide variety of projects. He has reviewed site investigation data including the interpretation of results from field and laboratory tests, in both sub-marine and terrestrial environments. He has worked on various ground movement/ damage assessments of neighbouring buildings and utilities due to construction activities in urban environments. He has also worked on projects involving the investigation of the causes of settlement problems and suggesting remedial solutions.

Dr Scarfone has gained significant experience in the assessment of pile driving by working in both onshore and offshore international pile driving projects, including the assessment of soil resistance to driving and the risk of pile run during driving.

Between November 2020 and July 2021, Dr Scarfone was seconded to Arup to work for HS2 as Resident Geotechnical Engineer based on site at Euston Area East (London). In this work, his main tasks were supervising and checking concrete piling operations, reviewing monitoring data and acting as intermediate point between the Principal Contractor and the Principal Designer for resolution of technical issues. His activity also involved quality control and review of testing of pile concrete samples and fibre-optic based thermal integrity testing of pile concrete.

Dr Scarfone was involved in the review of the design of a major tailing disposal facility in Brazil. This has involved the review of ground conditions, site investigation, field trials and seepage and slope stability analyses.

Dr Scarfone worked on a national project of power plant decommissioning involving specifications for grouting works and site support and supervision. He is also currently working on international legal arbitrations involving problems of slope instability, settlement of offshore underwater structures and interventions for mitigation of the risk of seismic liquefaction.

Dr Scarfone recently led GCG team working on a numerical study of the groundwater response to rainfall in slopes in Hong Kong. This

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Since 2025: Chartered member of the Institution of Civil Engineers, CEng MICE

Languages (other than English)

Italian

has involved reviewing typical Hong Kong geological and hydrogeological conditions and, for three specific slope sites, performing advanced 2D FE analyses of the groundwater response to rainfall, including unsaturated soil conditions and soil-atmosphere interaction effects.

Dr Scarfone is currently working on a high-profile project involving signal matching analysis and drivability analysis of piles driven offshore in weak rocks with the aim of developing a new design method for the prediction of the axial capacity of driven piles in weak rocks.

Previous experience

Dr Scarfone completed his PhD research in July 2020 on the modelling of hydraulic behaviour of unsaturated soils and its application to the numerical and experimental study of Capillary Barrier Systems at the University of Glasgow. During his PhD, he undertook: i) theoretical work, consisting of the development of new constitutive models for the hydraulic behaviour of unsaturated soils; ii) numerical work, consisting of long-term thermo-hydraulic multi-physics finite element analyses and limit analysis studying the application of Capillary Barrier Systems to slope stability subject to atmospheric conditions; iii) geotechnical laboratory classification tests and physical tests analysing and validating theoretical models describing the hydraulic behaviour of unsaturated soils and Capillary Barrier Systems. Dr Scarfone has published a number of technical articles in leading international journals and conferences, and a number of articles are currently under peer review or in preparation.

In 2016, prior to commencing his PhD, Dr Scarfone worked as a design civil engineer for several months in Rome (Italy). In particular, he worked on the design of pile foundations for bridge piers, review of the design of an important railway project and concrete residential structures. His activity also involved site visits to construction sites aimed to assess and check work progress.

After his MSc in 2016, Dr Scarfone won a ReLUIS Research Fellowship, allowing him to undertake research on seismic soil-structure interaction effects, which led to the publication of his work in a leading international journal.