Stephen Wilkinson Ph.D., D.I.C., A.R.S.M., F.G.S., F.R.M.S.

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EMAIL:	Stephen.Wilkinson@xjtlu.edu.cn Me@e-steve.co.uk	
EDUCATION:		

2007 - 2011 Department of Civil and Environmental Engineering, Imperial College, London. Ph.D (D.I.C.): Microstructure of UK Mudrocks

A detailed electron microscope study of the microstructure of the London, Gault, Kimmeridge, Oxford & Lias Clays. Location of sites was by negotiation with industry and land owners. I took high quality block samples on two sites and supervised the drilling of high quality boreholes for the others. This research covered twelve different methods of imaging mudrock structure, I undertook a study of the various imaging techniques currently available. The environmental electron microscope was selected for the advanced study. 2500 images were taken of the materials using the microscope and each image was processed for particle orientations, surface roughness and topographic organisation. I wrote Java programs for this purpose. A new method was created for the quantification of relative preferred particle orientation which correlated with measurements of anisotropy undertaken in the laboratory.

2005 - 2006	M.Sc Engineering Geology (D.I.C.) Including modules in soil mechanics, rock mechanics, hydrogeology, ground model creation and a research project:		
	"A review of the ground conditions below Winchester cathedral and their effects on the cathedral's structure"		
	This work proved the relationship between the structural damage sustained by Winchester Cathedral, the ground conditions on the site and the archaeological history of the site.		
2001 - 2005	The Royal School of Mines, Imperial College, London (M.Sci) (A.R.S.M.)		
	Modules: Engineering Rock Mechanics, Hydrogeology and Fluid Flow, Dissertation:		
	"The Translation of Validity Functions into Riemannian Space for the Analysis of Discontinuity Data"		
	Validity functions used in the clustering of joint set data were translated from Euclidian geometry (x,y,z) to Riemannian		
	geometry (surface of a sphere) to improve the ability of a program to model joint set data.		

EMPLOYMENT:

Lecturer, Xi'an Jiaotong-Liverpool University (XJTLU). (Feb 2011-Present):

XJTLU is a UK-China partner university, which awards students with both a University of Liverpool degree and a XJTLU degree. The Civil Engineering Department opened in 2010. I have been present on campus since the second semester of the degree programme, and have been engaged in the development of every year of the program. The first cohort of students graduated in 2013.

- Lecturing: I have prepared materials, designed coursework and examinations, and currently lecture on the following modules: geology, soil mechanics 1, soil mechanics 2, integrated design, structural design and planning, introduction to the built environment, engineering skills, surveying. I have delivered lectures to class sizes varying from 13 up to 350 students. All modules are moderated in 3 tiers, internally, then by Liverpool University, and also by a second UK external examiner, to ensure that the degree program meets UK QAA standards.
- Leading fieldwork groups: I have designed and led three separate geology field courses; including practical field exercises in engineering design.
- **Committee membership:** I am currently a member of the University Foundation Year Committee, the Software Advisory Group, the Library Affairs Committee and the Departmental Learning and Teaching Committee.
- New Laboratory Design: I designed the department's geotechnical laboratory, including design of services, temperature control specification, workbenches, equipment specification's, identification of suppliers, and quotation analysis, and customised designs for equipment not available in China to a sufficient standard for teaching.

Graduate Teaching Assistant. (2007-2011):

- Lecturing: I have taught individual classes at undergraduate level in geological maps and structures, slopes, landslides and soil classification. At M.Sc level I've led a class in case history analysis.
- **GTA work:** I have assisted in the practical teaching of undergraduate engineering geology for three years including rock identification, air photos, and set engineering problems.
- Leading fieldwork groups: I have assisted on several UG and MSc field trips in the UK and abroad over three years and I independently led one M.Sc subgroup at Cheddar. These trips included mapping, soil descriptions, rock mass classification, quarry visits, and geological structures.

Student Engineer, Jacobs Babtie. (Summer 2005):

I worked both in the field and in the office. The office work involved desk studies for an array of different sites including the writing of reports for clients. The field work involved being the sole supervisor of a UK Coal compaction site for the building of a road. This project has been praised in the House of Commons as an example of sustainable development. I also supervised several site investigations throughout the Midlands and North of the UK.

Assistant Geotechnical Engineer, Geotechnical Observations. (Summer 2004): This job combined laboratory and field work with detailed computer analysis. I undertook laboratory desiccation analysis using the suction probe, and carried out field monitoring work using inclinometers and piezometers. I also produced interpretive reports based on a statistical analysis of the data. I worked on a series of sites including some desk work for Wembley Stadium and the fieldwork on landslide monitoring of the M25 embankment.

PROFESSIONAL PAPERS AND ABSTRACTS

Wilkinson, S., and Fenton, C., (In Press), The Influence of Geological History on Preferred Particle Orientation and the Observed Anisotropy of Over Consolidated UK Mudrocks. Proceedings of the 12th IAEG Congress: Torino, Italy, 15-19 September 2014.

Wilkinson, S., Brosse, A., Coop, M. R., Fenton, C. H., Kamal, R. H., and Jardine, R., 2011, An Integrated Geotechnical Study of UK Mudrocks, XV European Conference on Soil Mechanics and Geotechnical Engineering, Athens, Greece 12-15 September 2011. 305-310pp DOI 10.3233/978-1-60750-801-4-30

Wilkinson, S., and Fenton, C., 2010, The application of stereo E-SEM in understanding 3D mudrock structure, in Williams, A. L., Pinches, G. M., Chin, C. Y., McMorran, T. J., and Massey., C. I., eds., Proceedings of the 11th IAEG Congress: Auckland, New Zealand, 5-10 September 2010. 1849-1856pp

Wilkinson, S., 2009a, The application of stereo E-SEM to 3D mudrock structure Belgium Society for Microscopy Annual Meeting & General Assembly: Gent, Belgium, November 2009.

-, 2009b, The microstructure of UK mudrocks Society for Electron Microscope Technology One Day Meeting: The School of Pharmacy, University of London, December 2009.

Wilkinson, S., Chung, P., Coop, M. R., and Fenton, C. H., 2009, 3D Mudrock Microstructure, MICROSOIL, Integrating Biological, Physical and Chemical Techniques for the Study of Soil Micro-Habitats: APEX Hotel, Dundee, UK. 16 - 17th September 2009.

SOCIETY MEMBERSHIPS

- 2003- Fellow of the Geological Society (F.G.S.) and member of the Engineering Group, elected to Fellow 2005.
- 2007- Fellow of the Royal Microscopical Society (F.R.M.S.), elected to Fellow 2012.
- 2007- Member of the British Geotechnical Association.
- 2007- Member of the International Society of Rock Mechanics.
- 2007- Member of the International Society for Soil Mechanics and Geotechnical Engineering.
- 2007- Member of the Society of Electron Microscope Technology.
- 2007- Member of the European Microscopy Society.

ACHIEVEMENTS AND AWARDS

- **Postgraduate Research Scholarship** (2014): Award number PGRS-13-02-01. Internal research grant, funding a PhD student to study the Impact of wind turbulence induced pressure fluctuations on subsurface-to-atmosphere gas exchange (TURBUGAS).
- **Postgraduate Research Scholarship** (2013): Award number PGRS-13-01-02. Internal research grant, funding a PhD student to study the use of construction and demolition waste derived fine aggregate in the high value construction market in China. Especially focused on elements of pavement design.
- **Research Development Fund (2013):** Award number RDF-13-01-06. Internal research grant, Research grant funding the identification of microbial consortia and geochemical environments in regions surrounding landfills and the assessment of the potential for the growth of biominerals within these environments.
- **Teaching Development Fund (2013):** Internal grant, funding the development of Computer Aided Learning (CAL) Packages for Core Subjects in Civil Engineering.
- **Postgraduate Research Scholarship** (2013): Award number PGRS-12-02-06. Internal research grant, funding a PhD student to study stimulated microbial activity for sustainable geotechnical remediation of unlined/uncontrolled municipal solid waste disposal sites.

- **Research Development Fund (2012):** Award number RDF-11-03-06. Internal research grant, studying the relationship between microstructural variation of terrestrial sediments and their engineering behaviour.
- **Research Award (2007):** Awarded by Royal Commission for the Exhibition of 1851
- The Clement le Nerve Foster Prize (2006): Awarded by the Royal School of Mines for excellence in geology, mineralogy and mining

SKILLS:

Extensive computer literacy: I have taken a course in PC repair and maintenance and am able to custom build a PC from components as well as installing software, drivers, etc. I am fluent in the use of Microsoft Office programs. I can write HTML and basic Java Script. I am able to use a number of different techniques for image manipulation and analysis, and have basic knowledge of the GIS software. I have written several basic applications using Java which I have used to augment my research. These include image analysis software, mapping height, gradient and aspect of material surfaces, automated surface roughness measurement, and basic file management programs.

Electron microscopy: I have been trained in the use of many imaging techniques including the environmental scanning electron microscope, scanning dual beam (FIB) and confocal microscope. I have used stereo electron microscopy for the reconstruction of 3D images, and have knowledge of many of the software interfaces which are used to drive these devices.

Fieldwork first aid: I have attended courses in fieldwork first aid, aimed at teaching how to handle situations where an ambulance may be 2-3 hours and a walk down the mountain away.

POSITIONS HELD:

Committee Chair (2012-2014): I am currently the chair of the Extracurricular Activities Working Group and the chair of the Subcommittee on Policy and Procedure

Year One Manager (2012-2014): I am currently responsible for the departmental input into the foundation year.

Departmental IT Officer (2011-2014): In this position I liaise between departmental staff members and University IT services, to ensure that both required hardware and software is available for teaching and research.

Library Liaison Officer (2011-2014): In this role I work between the members of the Department and the library to ensure that international textbooks and electronic resources are made available.

Departmental Webmaster (2011-2012): for one and a half years I was responsible for the upkeep of the departmental webpage including regular departmental news and event updates.

REFERENCES

Prof. Stephen Millard	Dr. Kangkang Tang		
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