

Dr Alister Smith MEng PhD GMICE FGS FHEA

EPSRC Fellow and Lecturer in Civil Engineering

School of Architecture, Building and Civil Engineering (ABCE), Loughborough University (LU), Leicestershire, UK

Tel: +44(0) 1509 565179, Email: A.Smith10@lboro.ac.uk, Web: www.alistersmith.co.uk, twitter.com/Alister_Smith10***Geotechnical Engineering – Soil Mechanics – Acoustic Emission – Smart Infrastructure*****RESEARCH FUNDING HIGHLIGHTS (> £1M secured)**

Title: <i>Assessment, Costing and enHancement of long lIfe, Long Linear assEtS (ACHILLES)</i>	2018 - 2022
Funder: EPSRC (Programme Grant)	
Value: £583,669 to LU of £4,872,904 via Newcastle University; Role: Co-Investigator; Status: Awarded	
Title: <i>Listening to Infrastructure</i>	2017 - 2020
Funder: EPSRC (Postdoctoral Fellowship)	
Value: £284,824; Role: Principal Investigator; Status: Awarded	
Title: <i>Listening to Infrastructure: Acoustic Emission Sensing of Geotechnical Assets</i>	2017
Funder: RAEng (Engineering for Development Research Fellowship)	
Value: £477,089; Role: Principal Investigator; Status: Offered – declined as EPSRC Fellowship accepted	
Title: <i>Doctoral Prize Fellowship</i>	2015 - 2017
Funder: EPSRC	
Value: £60,000; Role: Principal Investigator; Status: Awarded	
Title: <i>Community Slope SAFE</i>	2016 - 2018
Funder: EPSRC IAA & Institutional Global Development	
Value: £184,100; Role: Co-Investigator; Status: Awarded	
International visits: UC-Berkeley; Queen's University, Canada; University of British Columbia; ETH Zurich	2014 - 2018
Value: £3,500; Funders: COST Action TU1202, Robert's International Travel Fund, Santander Mobility Award	

ENTERPRISE & IMPACT HIGHLIGHTS

World-wide exclusive license of AE slope monitoring IP to RST Instruments Ltd.	2017 – present
Co-author of a REF2021 impact case study on Slope ALARMS and Community Slope SAFE	2017 - present
Field trials of Community Slope SAFE in Malaysia and Myanmar	2017 - present
Field trials of Slope ALARMS in the UK, Italy, Austria and Canada	2012 - present
Interviews in televised films on Slope ALARMS for BBC One and the Discovery Channel	2014 and 2016

EXTERNAL AWARDS

Professor William R Dearman QJEGH Young Author of the Year Award	2017
Institution of Civil Engineers Merit Award – Studies and Research Category winner	2015
Hawley Award (£5,000) for Engineering Innovation (Worshipful Company of Engineers)	2015
Thomas Telford Premium (Institution of Civil Engineers) - <i>Géotechnique Letters</i> best paper of the year	2015
Best paper and presentation winner (British Geotechnical Association) – 13 th Young Geotech. Engineers Symp.	2014

UNIVERSITY AWARDS

Hosting Prof Ian Moore (Queen's Uni. Canada) as Visiting Fellow (LU Institute of Advances Studies, £1.7k)	2019
Outstanding Research Project Award winner (LU Built Environment Awards)	2018
Research Paper of the Year - Highly Commended (LU Built Environment Awards)	2018
Loughborough University Enterprise Awards – Highly Commended ('One to watch' category)	2017
Institution of Civil Engineers Prize (£250) – Graduating top of the MEng Civil Engineering class	2012
East Midlands Geotechnical Group Prize (£200) – Best geotechnical MEng research project	2012

EMPLOYMENT

EPSRC Postdoctoral Fellow & Lecturer in Civil Engineering, Loughborough University	2017 - present
EPSRC Doctoral Prize Research Fellow, Loughborough University	2015 - 2017

EDUCATION

Doctor of Philosophy, Civil Engineering (Geotechnical), Loughborough University, Pass (no corrections) Thesis: <i>Quantification of slope deformation behaviour using acoustic emission monitoring</i> Supervisors: Prof. Neil Dixon and Dr Gary Fowmes, Examiners: Dr Joel Smethurst and Dr Paul Fleming	2012 - 2015
Master of Engineering, Civil Engineering, First Class Honours, Loughborough University <i>Graduating top of the class with an average assessment of 80% and winning two prestigious University awards</i>	2008 - 2012

PROFESSIONAL AFFILIATIONS

Fellow of the Higher Education Academy	2018 - present
Fellow of the Geological Society of London	2013 - present
Graduate Member of the Institution of Civil Engineers	2012 – present

EXTERNAL SERVICE

Peer Review, United States Department of Agriculture Innovation Fund	2019
Peer Review College, UKRI, Future Leaders Fellowships	2018 – present
Panel Member and Peer Review, NERC, Innovative Monitoring Approaches Call	2017
Editorial Board Member, <i>Quarterly Journal of Engineering Geology & Hydrogeology</i>	2017 - present
Expert Peer Review for 16 international journals (including <i>Géotechnique</i>)	2014 – present

INVITED TALKS

<i>Invited seminar talks at academic institutions:</i>	2014 to present
University of Alberta; University of Birmingham; University of British Columbia; University of California-Berkeley; University of Cambridge (Smart Infrastructure & Construction); University of Oxford; and Queen's University, Canada.	
<i>Invited seminar talks at industry and stakeholder organisations:</i>	2014 to present
Alberta Transportation; BC Hydro, Canada; Canadian Railways (National and Pacific); Community Care for Emergency Response & Rehabilitation (CCERR), Myanmar; Public Works Department of Malaysia; RST Instruments Ltd., Canada; Severn Trent Water; SlopeWatch community group, Malaysia; and Thurber Engineering Ltd., Canada.	
<i>Invited plenary talks at conferences:</i>	2015 to present
Agile Researcher Conference, Loughborough, UK; East Midlands University Association Conference 'Inspiring Futures', UK; Permanent Way Institution Technical Seminar, Nottingham, UK; Vadose zone workshop, Newcastle, UK.	

PHD STUDENT SUPERVISION

TBC: <i>Climate change impacts on infrastructure earthworks</i>	2019 - 2022
TBC: <i>Structural health monitoring and big data analysis for resilient infrastructure</i>	2019 - 2022
Tiago Biller: <i>Early detection of seepage-induced internal erosion using acoustic emission</i>	2017 - 2020
Helen Heather-Smith: <i>Propagation of soil-structure generated acoustic emission in buried infrastructure</i>	2016 - 2019

INTERNAL SERVICE

Peer Review and Mentoring Fellowship proposals (EPSRC, UKRI FLF, RAEng), LU	2017 - present
Research Committee and Welfare & Communications Committee, ABCE LU	2014 - present
Infrastructure Research Group Workshops Coordinator, ABCE LU	2017

UNDERGRADUATE TEACHING

Ground Engineering (3rd year) [recent student feedback score: 4.6 out of 5], Soil Mechanics, Geotechnics, Structural Mechanics, Structural Analysis, Surveying and Research Project Supervisions	2014 – present
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PUBLICATIONS SUMMARY

[15 high-quality journal papers published](#) (13 in top 25%), 3 journal papers under review, 12 conference papers, 4 articles in trade press, one book chapter, 3 best paper awards, 315 GS citations (103 in 2018), h10-index = 9

JOURNAL PAPERS

- [15] **Smith A** and Dixon N (2019) Acoustic emission behaviour of dense sands. *Géotechnique*, 10.1680/jgeot.18.P.209 (Citations=2, IF=2.982, SJR=3.256, SNIP=2.947) [Access link](#)
- [14] Dixon N, **Smith A**, Flint JA, Khanna R, Clark B and Andjelkovic M (2018) An acoustic emission landslide early warning system for communities in low-income and middle-income countries. *Landslides* 15:1631–1644. (Citations=6, IF=3.811, SJR=1.802, SNIP=2.135) [Access link](#)
- [13] Berg N, **Smith A**, Russell S, Dixon N, Proudfoot D and Take A (2018) Correlation of acoustic emissions with patterns of movement in an extremely slow-moving landslide at Peace River, Alberta, Canada. *Canadian Geotechnical Journal* 55(10): 1475-1488 (Citations=7, IF=2.565, SJR=1.930, SNIP=2.019) [Access link](#)
- [12] Smethurst JA, **Smith A**, Uhlemann S, Wooff C, Chambers J, Hughes P, Lenart S, Springman SM, Lofroth H and Hughes D (2017) Current and future role of instrumentation and monitoring in the performance of transport infrastructure slopes. *Quarterly Journal of Engineering Geology and Hydrogeology* 50(3): 271-286. **Professor Dearman Young Author of the Year Award** (Citations=14, IF=1.102, SJR=0.687, SNIP= 0.836) [Access link](#)
- [11] **Smith A**, Dixon N, Moore R and Meldrum P (2017) Acoustic emission monitoring of coastal slopes in NE England, UK. *Quarterly Journal of Engineering Geology and Hydrogeology* 50(3): 239-244 (Citations=3, IF=1.102, SJR=0.687, SNIP= 0.836) [Access link](#)
- [10] **Smith A**, Dixon N and Fowmes G (2017) Early detection of first-time slope failures using acoustic emission measurements: large-scale physical modelling. *Géotechnique* 67(2): 138-152 (Citations=16, IF=2.982, SJR=3.256, SNIP=2.947) [Access link](#)
- [9] Uhlemann S, Chambers J, Wilkinson P, Maurer H, Merritt A, Meldrum P, Kuras O, Gunn D, **Smith A** and Dijkstra T (2017) Four-dimensional imaging of moisture dynamics during landslide reactivation. *Journal of Geophysical Research: Earth Surface* 122: 398–418 (Citations=26, IF=3.412, SJR=2.369, SNIP=1.475) [Access link](#)
- [8] **Smith A**, Dixon N and Fowmes G (2016) Monitoring buried pipe deformation using acoustic emission: quantification of attenuation. *International Journal of Geotechnical Engineering* 11(4): 418-430 (Citations=9, IF=0.673, SJR=0.319, SNIP=0.578) [Access link](#)
- [7] Wilkinson P, Chambers J, Uhlemann S, Meldrum P, **Smith A**, Dixon N and Loke MH (2016) Reconstruction of landslide movements by inversion of 4D electrical resistivity tomography monitoring data. *Geophysical Research Letters* 43 (3), 1166-1174 (Citations=16, IF=4.456, SJR=2.819, SNIP= 1.429) [Access link](#)
- [6] Uhlemann S, **Smith A**, Chambers J, Dixon N, Meldrum P, Dijkstra T, Haslam E, Merritt A and Gunn D (2016) Assessment of ground-based monitoring techniques applied to landslide investigations. *Geomorphology* 253(1): 438-451 (Citations=59, IF=3.308, SJR=1.435, SNIP= 1.412) [Access link](#)
- [5] Dixon N, **Smith A**, Spriggs MP, Ridley A, Meldrum P and Haslam E (2015) Stability monitoring of a rail slope using acoustic emission. *Proceedings of the Institution of Civil Engineers: Geotechnical Engineering* 168(5): 373-384 (Citations=22, IF=1.056, SJR=0.681, SNIP=0.964) [Access link](#)
- [4] Dixon N, Spriggs MP, **Smith A**, Meldrum P and Haslam E (2015) Quantification of reactivated landslide behaviour using acoustic emission monitoring. *Landslides* 12(3): 549-560 (Citations=43, IF=3.811, SJR=1.802, SNIP=2.135) [Access link](#)
- [3] **Smith A** and Dixon N (2015) Quantification of landslide velocity from active waveguide-generated acoustic emission. *Canadian Geotechnical Journal* 52(4): 413-425 (Citations=26, IF=2.565, SJR=1.930, SNIP=2.019) [Access link](#)
- [2] **Smith A**, Dixon N, Meldrum P, Haslam E and Chambers J (2014) Acoustic emission monitoring of a soil slope: Comparisons with continuous deformation measurements. *Géotechnique Letters* 4(4): 255-261. **Awarded the ICE Thomas Telford Premium (Best Paper of the Year Prize)** (Citations=34, IF=2.041, SJR=1.174, SNIP=1.238) [Access link](#)
- [1] **Smith A**, Dixon N, Meldrum P and Haslam E (2014) Inclinator casings retrofitted with acoustic real-time monitoring systems. *Ground Engineering* 10: 24-29 (Citations=9, SJR=0.112) [Access link](#)

CONFERENCE PAPERS

- [12] **Smith A**, Biller T, Heather-Smith H, Dixon N and Flint JA (2019) Acoustic emission monitoring in geotechnical element tests. *17th European Conference on Soil Mechanics and Geotechnical Engineering*, Reykjavik Iceland, 1-6 September 2019
- [11] **Smith A**, Moore ID and Dixon N (2019) Acoustic emission sensing of pipe-soil interaction: Development of an early warning system for buried pipe deformation. *International Conference on Smart Infrastructure and Construction*, University of Cambridge, 8-10 July 2019
- [10] Biller T, **Smith A** and Dixon N (2019) Monitoring seepage-induced internal erosion using acoustic emission. *European Working Group on Internal Erosion, 27th Annual Meeting*, University of British Columbia, 18-21 June
- [9] Biller T, **Smith A** and Dixon N (2018) Early detection of seepage-induced internal erosion using acoustic emission monitoring. *15th BGA Young Geotechnical Engineers Symposium*, University of Surrey, 2-3 July 2018
- [8] Heather-Smith H, **Smith A**, Dixon N and Flint JA (2018) Monitoring buried infrastructure deformation using acoustic emission. *9th European Workshop on Structural Health Monitoring*, Manchester UK, 10-13 July 2018
- [7] Uhlemann S, Wilkinson PB, Meldrum P, **Smith A**, Dixon N, Merritt A, Swift RT, Whiteley J, Gunn D and Chambers JE (2017) The Hollin Hill Landslide Observatory - a decade of geophysical characterization and monitoring. *AGU Fall Meeting*, San Francisco
- [6] Uhlemann S, Chambers J, Wilkinson P, Maurer H, Meldrum P, Gunn D, **Smith A** and Dijkstra T (2016) Long-term 4D geoelectrical imaging of moisture dynamics in an active landslide. *AGU Fall Meeting*, San Francisco
- [5] Uhlemann S, **Smith A**, Chambers JE, Dixon N, Wilkinson PB, Dijkstra T and Gunn D (2015) Comparison of Sensor Types for Landslide Monitoring. *COST Action TU1202 Working Group Meeting*, Ljubljana, Slovenia, October
- [4] Dixon N, Codeglia D, **Smith A**, Fowmes G and Meldrum P (2015) An acoustic emission slope displacement rate sensor - case studies. *9th Int. Symp. on Field Measurements in Geomechanics*. Sydney, Australia, September
- [3] Dixon N, Moore R, Spriggs MP, **Smith A**, Meldrum P and Siddle R (2014) Performance of an acoustic emission monitoring system to detect subsurface ground movement at Flat Cliffs, North Yorkshire, UK. *IAEG XII Congress*, 2, 117-120, Turin, Italy, September 2014
- [2] **Smith A** and Dixon N (2014) Acoustic emission monitoring of active waveguides to quantify slope stability. *13th BGA Young Geotechnical Engineers' Symposium*. University of Manchester, June. **Awarded best presentation.**
- [1] **Smith A**, Dixon N, Berg N, Take A and Proudfoot D (2014) Listening for Landslides: Method, Measurements and the Peace River Case Study. *Geohazards 6*, Ontario, Canada June 2014

BOOKS AND CHAPTERS

Smith A (2017) Chapter 7: 'Landslides'. In: Boshier L and Chmutina K (Eds.) *Disaster risk reduction for the built environment: an introduction*. Wiley-Blackwell

TRADE / PRESS ARTICLES

Smith A (2019) Listening to Infrastructure: Early warning systems for infrastructure deterioration. *Open Access Government*, January 2019 [Access link](#)

Smith A (2018) Listening to Infrastructure, EPSRC Fellowship. *Impact 5:25-27* [Access link](#)

Smith A (2018) Fine-tuning an EPSRC postdoc Fellowship. *Research Professional and Research Fortnight*, May

Smith A, Dixon N, Codeglia D and Fowmes G (2016) An acoustic emission slope displacement rate sensor: Comparisons with established instrumentation. *Geotechnical Instrumentation News*, December 2016 [Access link](#)