



Asadul Haque

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Qualification:

GCHE(Monash); PhD(Wollongong); MEng(AIT); BScEng(KBIT)

Dr Haque is a tenured-track full-time teaching & research staff (Level C), an elected Fellow of the Institution of Engineers (FIEAust) and an Associate Editor of the Australian Journal of Civil Engineering (AJCE). He has been conducting research in two major areas: critical infrastructure and carbon-sequestration. His work on biochar carbon sequestration in soils and protecting infrastructure in acid sulphate soils (ASS) are of significant contributions, where a low carbon footprint based mix design method for improving engineering properties of soft ASS has been developed to reduce risk associated with the serviceability performance of infrastructure. He is the recipient of many industry and national competitive grants, valued at \$5M in total (2-ARC Discovery, 2-ARC Linkage, 1-Rail CRC and 2-large Industry projects). He has been successful in securing 3-large ARC LIEF grants of \$3.8M in total to establish world-class laboratory facilities at Monash, including a high resolution X-Ray CT Facility (\$1.2M). He has published more than 85 papers in reputed journals and conferences. He has supervised successfully 12 PhDs and 5 Masters students as main and associate supervisors since 2002.

Dr Haque worked as the Director of Teaching of Civil Engineering (2014-2015) and thus provided leadership to develop quality learning & teaching practices through development of new policies and procedures. He is the program leader of the off-campus master of infrastructure engineering & management program. He has been teaching CIV4249- Foundation Engineering, CIV4212-Civil Engineering Practice 4 at undergraduate level using the Real-Project-Based learning approach.

Teaching Commitments:

- CIV4249: Foundation Engineering (Coordinator & Lecturer)
- CIV4212: Civil Engineering Practice 4 (Lecturer-Geotechnical discipline)

Publications:

- **Book:**
- Indraratna, B. & Haque, A. (2000). Shear Behaviour of Rock Joints. Balkema Publishers, Rotterdam, The Netherlands, 164p (ISBN:90 5809 3077).
- **Refereed Journals:**
- Rathnaweera TD, Ranjith PG, Perera MSA, Haque A, Lashin A, Al Arifi N, Chandrasekhram D, Yang SQ, Xu T, Wang SH, and Yasar E, 2015, CO₂-induced mechanical behaviour of Hawkesbury sandstone in the Gosford basin: An experimental study, Materials Science and Engineering, doi: 10.1016/j.msea.2015.05.029.
- Islam, S., Haque, A., Wilson, S., Ranjith, P, 2015, Time-Dependent Strength and Mineralogy of Lime-GGBS Treated Naturally Occurring Acid Sulfate Soils, J. Mater. Civ. Eng., doi: 10.1061/(ASCE)MT.1943-5533.0001333, 04015077.
- Bui, H.H., Kodikara, J.K., Bouazza, A., Haque, A., Pathegama Gamage, R., 2014, A novel computational approach for large deformation and post-failure analyses of segmental retaining wall systems, International Journal for Numerical and Analytical Methods in Geomechanics, vol 38, issue 13, John Wiley & Sons, Chichester West Sussex UK, pp. 1321-1340.
- Chowdhury, B., Haque, A., Muhunthan, B., 2014, New pressure-void ratio relationship for structured soils in the virgin compression range, Journal of Geotechnical and Geoenvironmental Engineering - ASCE, vol 140, issue 8, American Society of Civil Engineers, Reston VA USA, pp. 1-5.
- Haque, A., Tang, C.K., Islam, M.S., Pathegama Gamage, R., Bui, H.H., 2014, Biochar sequestration in lime-slag treated synthetic soils: A green approach to ground improvement, Journal of Materials in Civil Engineering, vol 26, issue 12, American Society of Civil Engineers, Reston VA USA, pp. 1-5.
- Islam, M.S., Haque, A., Wilson, S., Pathegama Gamage, R., 2014, Improvement of acid sulfate soils using lime-activated slag, Ground Improvement, vol 167, issue 4, I C E Publishing, London UK, pp. 235-248.
- Islam, S.T., Haque, A., Wilson, S., 2014, Effects of curing environment on the strength and mineralogy of lime-GGBS-treated acid sulphate soils, Journal of Materials in Civil Engineering, vol 26, issue 5, American Society of Civil Engineers, Reston VA USA, pp. 1003-1008.
- Nasvi, M.C., Ranjith, P.G., Sanjayan, J., Haque, A., Li, X., 2014, Mechanical behaviour of wellbore materials saturated in brine water with different salinity levels, Energy, vol 66, Elsevier, Camden London UK, pp. 239-249.

- Chong, W.L., Haque, A., Pathegama Gamage, R., Shahinuzzaman, A., 2013, Modelling of intact and jointed mudstone samples under uniaxial and triaxial compression, *Arabian Journal of Geosciences*, vol 6, issue 5, Springer, Heidelberg Germany, pp. 1639-1646.
- Mohamed Careem, M.N., Pathegama Gamage, R., Sanjayan, J.G., Haque, A., 2013, Sub- and super-critical carbon dioxide permeability of wellbore materials under geological sequestration conditions: an experimental study, *Energy*, vol 54, Pergamon- Elsevier, Oxford UK, pp. 231-239.
- Shukla, R., Pathegama Gamage, R., Choi, S.K., Haque, A., Yellishetty, M., Hong, L., 2013, Mechanical behaviour of reservoir rock under brine saturation, *Rock Mechanics and Rock Engineering*, vol 46, issue 1, Springer-Verlag GmbH, Wien Austria, pp. 83-93.
- Haque, A., Kodikara, J., 2012, A simplified analytical model for predicting the shear behaviour of regular triangular rock/concrete joints under constant normal stiffness, *Geotechnique*, vol 62, issue 2, ICE Publishing, London UK, pp. 171-176.
- Ip, M., Haque, A., Bouazza, A., 2012, Influence of cyclic stress pulse shapes on filtration behavior of railway subballast, *Journal of Geotechnical and Geoenvironmental Engineering - ASCE*, vol 138, issue 2, American Society of Civil Engineers, USA, pp. 230-235.
- Shukla, R., Pathegama Gamage, R., Choi, S.X., Haque, A., 2012, A novel testing apparatus for hydromechanical investigation of rocks: geo-sequestration of carbon dioxide, *Rock Mechanics and Rock Engineering*, vol 45, issue 6, Springer-Verlag GmbH, Wien Austria, pp. 1073-1085.
- Stanley, B., Chowdhury, B., Haque, A., 2012, A preliminary study of strength behaviour of lime-slag treated pyrite bearing soft Coode Island silt, *Australian Geomechanics*, vol 47, issue 2, Australian Geomechanics Society, NSW Australia, pp. 17-23.
- Chong, W., Haque, A., Pathegama Gamage, R., Shahinuzzaman, A., 2011, A parametric study of lateral load behaviour of single piles socketed into joint rock mass, *Australian Geomechanics*, vol 46, issue 1, Australian Geomechanics Society, Australia, pp. 43-50.
- Chong, W., Haque, A., Pathegama Gamage, R., Shahinuzzaman, A., 2011, Effect of joints on p-y behaviour of laterally loaded piles socketed into mudstone, *International Journal of Rock Mechanics and Mining Sciences*, vol 48, issue 3, Pergamon-Elsevier, Oxford UK, pp. 372-379.
- Shukla, R., Pathegama Gamage, R., Choi, S., Haque, A., 2011, Study of caprock integrity in geosequestration of carbon dioxide, *International Journal of Geomechanics*, vol 11, issue 4, American Society of Civil Engineers, USA, pp. 294-301.
- Stanley, B., Chowdhury, B., Haque, A., 2011, Discussion of "Addressing sulfate-induced heave in lime treated soil" by Dallas N.Little, Syam Nair, and Bruce Herbert, *Journal of Geotechnical and Geoenvironmental Engineering - ASCE*, vol 137, issue 8, American Society of Civil Engineers, Virginia USA, pp. 812-813.
- Kodikara, J., Haque, A., Lee, K., 2010, Theoretical p-y curves for laterally loaded single piles in undrained clay using bezier curves, *Journal of Geotechnical and Geoenvironmental Engineering - ASCE*, vol 136, issue 1, American Society of Civil Engineers, Reston Virginia USA, pp. 265-268.
- Shukla, R., Ranjith, P., Haque, A., Choi, S., 2010, A review of studies on CO₂ sequestration and caprock integrity, *Fuel*, vol 89, issue 10, Pergamon-Elsevier, Oxford UK, pp. 2651-2664.

- Stanley, B., Singh, G., Haque, A., Ranjith, P., Bouazza, A., 2010, Lime optimisation in lime-slag treated soft Coode island silt in Melbourne, Australian Geomechanics, vol 45, issue 1, Australian Geomechanics Society, NSW Australia, pp. 65-75.
- Wilkinson, A., Haque, A., Kodikara, J., 2010, Stabilisation of clayey soils with industrial by-products: part a, Ground Improvement, vol 163, issue 3, Institution of Civil Engineers, London UK, pp. 149-163.
- Wilkinson, A., Haque, A., Kodikara, J., 2010, Stabilisation of clayey soils with industrial by-products: part b, Ground Improvement, vol 163, issue 3, Institution of Civil Engineers, London UK, pp. 165-172.
- Wilkinson, A., Haque, A., Kodikara, J., Adamson, J., Christie, D., 2010, Improvement of problematic soils by lime slurry pressure injection: case study, Journal of Geotechnical and Geoenvironmental Engineering - ASCE, vol 136, issue 10, American Society of Civil Engineers, Virginia USA, pp. 1459-1468.
- Bouazza, A., Haque, A., Wang, D.W., 2009, Assessment of some hydraulic properties of slime slurries from sand mining pits using a modified triaxial cell, Geotechnical and Geological Engineering, vol 27, issue 1, Springer, Netherlands, pp. 115-121.
- James, R., Kamruzzaman, A., Haque, A., Wilkinson, A., 2008, Behaviour of lime - Slag-treated clay, Ground Improvement, vol 161, issue 4, Institution of Civil Engineers, London UK, pp. 207-216.
- Kamruzzaman, A., Haque, A., Bouazza, A., 2008, Filtration behaviour of granular soils under cyclic load, Geotechnique, vol 58, issue 6, Institution of Civil Engineers, London UK, pp. 517-522.
- Rex, S., Chapman, M., Haque, A., Kamruzzaman, A., Wilkinson, A., 2008, Strength and compressibility characteristics of lime-slag-treated Coode Island Silt, Australian Geomechanics, vol 43, issue 4, Australian Geomechanics Society, St Ives NSW Australia, pp. 31-40.
- Bouazza, A., Haque, A., Wang, M.W., 2008, Assessment of some hydraulic properties of slime slurries from sand mining pits using a modified triaxial cell. Geotechnical and Geological Engineering, 27, 115-121.
- Kamruzzaman, AHM., Haque, A., Bouazza, A., 2008, Filtration behaviour of granular soils under cyclic load, Geotechnique, 58(6), 517-522.
- James, R., Kamruzzaman, AHM., Haque, A., Wilkinson, A., 2008, Behaviour of lime-slag treated clay, Proceedings of ICE-Ground Improvement, 161(4), 207-216.
- Schult, M. B., Haque, A. Ranjith, P.G., 2007, Designing stiffened raft footing on non-engineered fill, Australian Geomechanics Journal, 42(2), 97-107.
- Haque, A., Kabir, E. Bouazza, A., 2007, Cyclic filtration apparatus for testing subballast under rail track, J. Geotechnical & Geoenvironmental Engineering, 133(3), 338-341.
- Kodikara, J., Lee, KY, Haque, A., 2006, Theoretical prediction of p-y curves for laterally loaded piles in clay, Australian Geomechanics Journal, 41(4), 69-77.
- Kong, KH., Kodikara, J., Haque, A., 2006, Numerical modelling of the side resistance development of piles in mudstone with direct use of sidewall roughness, Int. J. Rock Mech. Mining Sciences, 43(6), 987-995.
- Bouazza, A., Haque, A., Kwang, P.S., Chapman, G., 2006, Strength improvement of Coode Island Silt by the soil mixing method, Australian Geomechanics Journal, 41(3), 101-106.
- Kodikara, J., Kong, K.H., Haque, A., 2006, Numerical evaluation of side resistance of tapered piles in mudstone, Geotechnique, 56(7), 505-510.

- Wilkinson, A., Haque, A., Kodikara, J., Christie, D., Adamson, J., 2004, Stabilisation of Reactive Subgrades by Cementitious Slurry Injection - a review, *Australian Geomechanics Journal*, 39(4), 81-93.
- Ranjith, P.G., Fourar, M., Pong, S.F., Haque, A., 2004, Characterisation of fractured rocks under uniaxial loading states, *Int. J. Rock Mech. & Min. Sci.*, 41(Supplement 1), 43-48.
- Indraratna, B., Haque, A., 1999, Triaxial equipment for measuring the permeability and strength of intact and fractured rocks, *Geotechnique*, 49(4), 515-521.
- Indraratna, B., Haque, A., Aziz, N., 1999, Shear behaviour of idealised infilled joints under constant normal stiffness, *Geotechnique*, 49(3), 331-355.
- Indraratna, B., Haque, A., Aziz, N., 1998, Laboratory modelling of the shear behaviour of soft joints under constant normal stiffness condition, *J. Geotechnical and Geological Engineering*, 16, 17-44.
- Indraratna, B., Haque, A., Aziz, N., 1997, Experimental study of the shear behaviour of rock joints under constant normal stiffness conditions, *Int. J. Rock Mech. & Min. Sci.*, 34(3-4), 141.e1-141.e14
- **Refereed Conferences:**
- Weerasekara, P., Islam, S., Haque, A., 2015, A preliminary investigation into the sequestration of biochar in Lime-GGBS treated Acid Sulphate Soils. *Proc. 12th Australia New Zealand Conference on Geomechanics (ANZ 2015)*, pp.73-79.
- Haque, A., Kodikara, J., 2015, Analytical and laboratory modelling of shear behaviour of regular rock joints under constant normal stiffness. *Proc. the 13th International Congress of Rock Mechanics*, Montreal, Canada, Paper No. 396 (in USB), 8p.
- Chong, W., Haque, A., Pathegama Gamage, R., Shahinuzzaman, A., 2012, A p-y approach to predict the lateral load capacity of piles socketed into Melbourne mudstone, *ANZ 2012 Conference Proceedings*, 15 July 2012 to 18 July 2012, Australian Geomechanics Society, Melbourne Vic Australia, pp. 596-601.
- Chong, W.L., Haque, A., Pathegama Gamage, R., Shahinuzzaman, A., 2012, 3DEC modelling of p-y behaviour of laterally loaded piles in jointed rock, *Harmonizing Rock Engineering and the Environment*, 18 October 2011 to 21 October 2011, CRC Press, London UK, pp. 1881-1884.
- Ip, M.C., Haque, A., Bouazza, A., 2012, Contribution of a geotextile towards the improvement of sub-ballast filtration criteria under cyclic stress pulses, *ANZ 2012 Conference Proceedings*, 15 July 2012 to 18 July 2012, Australian Geomechanics Society, Melbourne Australia, pp. 445-450.
- Islam, M.S., Chowdhury, B., Haque, A., 2012, On the sustainable ground improvement aspects of pyrite bearing clay using lime activated slag, *Proceedings of the 4th International Conference on Grouting and Deep Mixing*, 15 February 2012 to 18 February 2012, American Society of Civil Engineers, Reston VA USA, pp. 1781-1788.
- Pallewela Liyanage, P.W., Pathegama Gamage, R., Viete, D.R., Haque, A., Bouazza, A., 2012, Crack initiation stress for saturated sandstone in triaxial compression, *46th US Rock Mechanics/Geomechanics Symposium*, 24 June 2012 to 27 June 2012, American Rock Mechanics Association (ARMA), Chicago USA, pp. 1-8.
- Pallewela Liyanage, P.W., Pathegama Gamage, R., Viete, D.R., Haque, A., Bouazza, A., 2012, The influence of bedding angle on failure mechanisms in sandstone, *Harmonizing Rock Engineering and the Environment*, 18 October 2011 to 21 October 2011, CRC Press, London UK, pp. 321-324.

- Wasantha P.L.P., Ranjith P.G., Haque A., Kodikara J. & Bouazza A., 2011, Implications of Joint Properties on the Strength of a Jointed Rock Mass. *Advances in Unsaturated Soil, Geo-Hazard, and Geo-Environmental Engineering (GSP 217)*, ASCE, pp. 258-266.
- Chong, W., Haque, A., Pathegama Gamage, R., Shahinuzzaman, A., 2011, 3DEC modeling of the effect of joints on lateral capacity of socketed pile in laboratory conditions, *Proceedings of the 2nd International FLAC/DEM Symposium - Continuum and Distinct Element Numerical Modeling in Geomechanics - 2011*, 14 February 2011 to 16 February 2011, Itasca International Inc., Minneapolis USA, pp. 231-236.
- Chong, W.L., Haque, A., Ranjith, P.G., Shahinuzzaman, A., 2009, Numerical modelling of laboratory behaviour of single laterally loaded piles socketed into jointed rocks, *Proceedings of the 9th Int. Conf. on Analysis of Discontinuous Deformation (ICADD9) - New Developments and Applications*, 25 November 2009 to 27 November 2009, Research Publishing Services, Singapore, pp. 413-420.
- Chong, W.L., Haque, A., Ranjith, P.G., Shahinuzzaman, A., 2008, Lateral load capacity of single piles socketed into jointed rocks - A Review, *Proceedings of the First Southern Hemisphere Int. Rock Mechanics Symp. (SHIRMS2008)*, 16 September 2008 to 19 September 2008, Australian Centre for Geomechanics, Perth WA Australia, pp. 297-309.
- Haque, A., Kamruzzaman, A., Christie, D., Bouazza, A., 2008, Towards a better design guideline of sub-ballast materials for filtration purpose under cyclic load, *Proceedings of CORE 2008 Conference on Railway Engineering: Rail-the-Core of Integrated Transport*, 7 September 2008 to 10 September 2008, Engineers Australia, Perth WA Australia, pp. 611-616.
- Wilkinson, A., Haque, A., Kodikara, J., Adamson, J. and Christie, D., 2007, Lime Slurry Pressure Injection of Railway Subgrades, *10th Australia-New Zealand Geotechnical Conference*, Brisbane, Volume 2, 192-197.
- Wilkinson, A., Haque, A. and Kodikara, J., 2006, Factors affecting cementitious stabilisation in a range of geo-environments. *Advances in Unsaturated Soil, Seepage, and Environmental Geotechnics. Geotechnical Special Publication No. 148*, ASCE, 323-328.
- Kabir, E., Haque, A. and Bouazza, A., 2006, Effect of cyclic loading on filtration behaviour of subballast materials. *Advances in Unsaturated Soil, Seepage, and Environmental Geotechnics. Geotechnical Special Publication No. 148*, ASCE, 180-186.
- Mehic, M, Ranjith, PG., Choi, SK, and Haque, A., 2006, The geomechanical behaviour of Australian Black coal under the effects of CO₂ injection: Triaxial testing. *Advances in Unsaturated Soil, Seepage, and Environmental Geotechnics. Geotechnical Special Publication No. 148*, ASCE, 290-297.
- Yudan Y, Ranjith PG, Verma AK, Choi SK, and Haque A, 2006, A parametric study on flow of groundwater in fractured-porous media 3D simulation, *4th Asian Rock Mechanics Symposium (ARMS)*, Leung, CF & Zhou, YX. ed., Singapore, 284 (full paper in CD-ROM).
- Kong, KH, Haque, A, Kodikara, J. and Ranjith, PG, 2006, Numerical modeling of shear behaviour of inclined saw-tooth mudstone-concrete joint using FLAC. *4th Asian Rock Mechanics Symposium (ARMS)*, Leung, CF & Zhou, YX. ed., Singapore, 370 (full paper in CD-ROM).
- Kabir, E., Haque, A. and Bouazza, A., 2006, Effect of cyclic load on the design of subballast. *Conference on Railway Engineering (CORE)*, Melbourne, 181-184.

- Rahman, M., Ranjith, P.G and Haque, A., 2005, Some aspects in wave propagation through fractured rock media. Proc. 6th Asia Pacific Conference on Shock & Impact Loads on Structures, Perth, Australia, 473-478.
- Wilkinson, A., Haque, A., Kodikara, J., Adamson, J. & Christie, D., 2005, Physico-Chemical Aspects of Cementitious Slurry Design for the Stabilisation of Reactive Soils. Proc. ISSMFE Congress, Osaka, Japan, 1813-1816.
- Haque, A. & Ranjith, PG., 2004, Laboratory and numerical modelling of shear behaviour of natural rock joints under CNS. 3rd ARMS, Kyoto, Japan, Vol.2, 1017-1020.
- Kabir, E., Haque, A. & Bouazza, A., 2004, Filtration behaviour of capping-subgrade interface under dynamic loading. Geofilts 2004, South Africa, 347-357.
- Ranjith, PG, Haque, A., Bouazza, A., Chong, YD., Hefney, AM., & Tan, WL., 2004, A parametric study on groundwater flow towards a tunnel: using finite difference method. EUROCK 2004, Austria.
- Haque, A., Bouazza, A., & Kodikara, J., 2004, Filtration behaviour of cohesionless soils under dynamic loading condition. Proc. 9th ANZ conference in Geomechanics, Auckland, Vol 2, 867-873.
- Haque, A. & Indraratna, B., 2003, Effect of roughness on the peak shear strength of clay infilled joints under constant normal stiffness. Proc. 10th ISRM Congress, South Africa, Vol 1, 481- 485.
- Haque, A., Chan, K., Stone, P. & Christie, D., 2003, Modelling of track foundation behaviour at ZigZag tunnels near Lithgow, NSW. ISLyon03, 1345-1351.
- Lee, K.Y., Kodikara, J. & Haque, A., 2003, Numerical analysis of model pile failure due to soil movement using FLAC3D. Proc. Asian Regional Conference in Geotechnical Engineering, Singapore, 627-631.
- Haque, A. & Indraratna, B., 2000, Numerical modelling of shear behaviour of rock joints. Geo-Eng 2000, Melbourne (full paper in CD).
- Indraratna, B. & Haque, A., 1998, A study on shear behaviour of rock joints. 8th Anz Conference on Geomechanics, Hobart, Australia, Vol. 2, 619-625.
- Haque, A. & Kamruzzaman, AHM, 1998, Improvement of soft Khulna soil by mixing admixtures. Proc. 13th South East Asian Geotechnical Conference, Taipei, 309-314.
- Indraratna, B. & Haque, A., 1998, Effect of infill on the shear behaviour of soft joints. Proc. 2nd Int. Symp. On Geotechnical Engineering of Hard Soils-Soft Rocks, Naples, Italy, Balkema Publishers, Rotterdam, Vol. 1, 199-208.
- Indraratna, B. & Haque, A., 1998, Laboratory evaluation of jointed rock mass permeability using high pressure triaxial apparatus. Proc. 3rd Int. Conf. Mechanics of Jointed and Faulted Rock (MJFR-3), Balkema Publishers, Rotterdam, 561-566.
- Indraratna, B., Haque, A. & Aziz, N., 1998, Comparative behaviour of simulated soft rock joints under direct shear and constant normal stiffness conditions. Int. Conf. Geomechanics/Ground Control in Mining & Underground Construction, Wollongong, Australia, Vol. 1, 85-98.
- Indraratna, B., Vafi, F. & Haque, A., 1998, Experimental and analytical modelling of filtration in granular media. Filtration & Drainage in Geotechnical/Geoenvironmental Engineering, Geotechnical Special Publication Number 78, ASCE, 89-106.
- Indraratna, B. & Haque, A., 1997, Shear behaviour of soft joints using large-scale shear apparatus. Environmental and safety concerns in underground constructions-Proc. 1st Asian Rock Mech. Symposium, Lee, Hi-Keun, Hyung-Sik Yang & So-Keul Chung (eds.), Balkema Publishers, Rotterdam, Vol.1, 421-426.
- Indraratna, B. & Haque, A., 1997, Effect of normal stiffness and strain rate on the shear strength of soft joints. Rock stress- Proceedings of an International Symposium,

Saguwara, K & Obara, Y. (eds.), Kumamoto, Japan, Balkema Publishers, Rotterdam, 315-320.

- Indraratna, B., Haque, A. & Dunstone, 1997, Design of rock bolt support for poor quality rocks based on case histories. Proc. Int. Symp. on Rock Support, Lillehammer, Norway, 140-157.
- Indraratna, B., Aziz, N. & Haque, A., 1997, Shear strength characteristics of soft rock joints based on constant normal stiffness testing. Proc. 16th Int. Conf. on Ground Control in Mining, (Peng, S., ed.), Morgantown, U.S.A, 267-273.
- Honjo, Y., Haque, A. & Tsai, K.A., 1996, Self-filtration behaviour of widely and gap graded cohesionless soils. Proc. 2nd Int. Conf. on Geofilters, Montreal, Canada, 227-236.
- Indraratna, B., Vafi, F. & Haque, A., 1996, Design of granular filters based on experimental and theoretical studies. Proc. 2nd Int. Conf. on Geofilters, Montreal, Canada, 1-10.
- Indraratna, B., Vafi, F. & Haque, A., 1996, Laboratory and analytical modelling of granular filters. Proc. 7th ANZ Conf. on Geomechanics, Adelaide, Australia, 80-85
- **Research grants:**
- ARC Discovery (\$270k), 2016, Long-term mechanical-flow performance of an enhanced geothermal reservoir, CI (DP160104223).
- ARC-LIEF (\$1.2M with \$500k from ARC), 2013, X-Ray Microscopy Facility for Imaging Geo-materials (XMFIG), lead CI & Facility Manager (LE130100006).
- ARC Discovery (\$330k), 2012, Geological sequestration of carbon dioxide in deep saline aquifers: coupled flow-mechanical considerations, CI (DP120103003).
- ARC-LIEF (\$1.9M with \$940k from ARC), 2012, Advanced macro scale test chamber to simulate ground conditions for the development of new sustainable and renewable energy technologies, CI (LE120100117).
- Water Industry Grant (\$3.3M), Advanced condition assessment and failure prediction technologies for optimal management of critical water supply pipes, CI.
- ARC-Linkage (\$348k), 2010, Influence of scale effect on the strength of rock mass for the better prediction of slope stability in open-cut mines, CI (LP100100889).
- Powerlink, Qld (\$46k), 2008, Lateral capacity of single piles socketed into jointed rock mass, lead CI.
- ARC-LIEF (\$600k with \$350k from ARC), 2007, Advanced testing facility for geological sequestration of greenhouse gases, CI (LE0775616).
- RailCRC (\$172k), 2005, Stress-strain and filtration research on sub-ballast materials, lead CI.
- ARC-Linkage (\$92k), 2003, Improvement of railway subgrade using lime-fly ash slurry injection, lead CI.

Editorial:

- Associate Editor (Geotechnical): Australian Journal of Civil Engineering, 2014 - .

Supervision:

Current research students:

1. Mechanical and mineralogical behaviour of biochar sequestered acid sulphate soils (Xue Le-PhD)-Main supervisor
2. X-Ray CT imaging and modeling the microstructural treated soil (Asheque-Al-Mahbub-PhD)-Main supervisor

3. Study of coupled thermo-hydro-mechanical (THM) behaviour of rocks: Deep geothermal energy (Shi Shi-PhD)-Associate supervisor.
4. Cost Effective Management Of Water Pipes (Chik-PhD)-Associate supervisor
5. Study of the accelerated carbonation of coal fly ash for carbon dioxide sequestration and soil amendment (UKWATTAGE-PhD)-Associate supervisor
6. Modelling of pipe-soil interaction in seabed (RATHNAYAKA-PhD)-Associate supervisor
7. Geological sequestration of carbon dioxide in deep saline aquifers: Coupled flow-mechanical considerations (RATHNAWEERA, Tharaka-PhD)-Associate supervisor
8. Geological sequestration of carbon dioxide in deep saline aquifers: coupled flow-mechanical consider (Dilanth-PhD)-Associate supervisor

Research fellow/student supervised:

1. Strength and mineralogical developments of lime-slag treated acid sulphate soils(S Islam-PhD)-Main supervisor
2. Mechanical behaviour of lime-slag treated Coodle Island Silt (Bishwajit Chowdhury-PhD)- Main supervisor
3. Lateral load capacity of single piles socketed into jointed mudstone (W L Chong-PhD)(Main supervisor)
4. Engineering & Microstructural Behaviour of Lime-Slag Treated Pyrite Bearing Coode Island Silt (B Stanley, MEngSc by research)-Main Supervisor.
5. A study of filtration behaviour of subballast subjected to cyclic stress pulses. (C Ip, MEngSc by research)-Main Supervisor.
6. Filtration behaviour of sub-ballast under cyclic load (E Kabir, MEngSc by research)-Main Supervisor.
7. Filtration behaviour of sub-ballast under cyclic load (Dr AHM Kamruzzaman, Research Fellow)- Main supervisor.
8. Stabilisation of railway subgrade by injecting lime-fly ash slurry (Alex Wilkinson, PhD)-Main supervisor.
9. Stiffened raft footing on non-engineered fill (Martin Schult, MEngSc)- Main supervisor.
10. Numerical analysis of piles loaded laterally by structural forces or moving soil (Kah Ying Lee, MEngSc by research)-Associate supervisor.
11. Numerical analysis of tapered piles in Melbourne mudstone (Kee Ho Kong, MEngSc by research)- Associate supervisor.
12. A study of CO₂ storage capacity estimation in sedimentary rocks (De Silva-PhD)-Associate supervisor
13. On the coupled hydro-mechanical behaviour of jointed rock masses: an application to mine slope stability (Pallewela Liyanage, Piyal Wasantha-PhD)-Associate supervisor
14. Geopolymer as well cement for geological sequestration of carbon dioxide (Mohamed Careem, Nasvi-PhD)-Associate supervisor
15. Study of reservoir rock and caprock integrity in geo-sequestration of carbon dioxide (S Potdar-PhD)-Associate supervisor
16. Study of desiccation cracking and fracture properties of clay soils (Costa-PhD)-Associate supervisor

Professional Association:

Fellow of the Institution of Engineers, Australia, 2015

Member of Australian Geomechanics Society (AGS)

Member of International Society of Soil Mechanics & Foundation Engineering (ISSMFE)

Member of International Rock Mechanics Society (ISRM)

Research Interests:

- Soil improvement
- X-Ray Computed Tomography
- Soil carbon sequestration
- Railway track geotechnology
- Laterally loaded piles in jointed rocks
- CO₂ sequestration