



Professional summary

Dr Gary Choy is a chartered engineer with over 22 years of practical experience. His area of expertise includes tunnelling, pipelines, deep excavations and foundation systems, instrumentation & monitoring, and construction impact assessment for third party infrastructure. He has been providing highly specialised pipeline and tunnel expertise to utility companies including Thames Water and Affinity Water to ensure excellent services to customers and operational continuity, and to protect whole life asset value.

Education and Career

Since 2006: GCG, London
2003-05: Research Fellow, St. John's College, Cambridge
2000-04: PhD, Cambridge University
1996-2000: BEng (1st Class), Hong Kong University of Science and Technology
1998-99: Education Abroad Program, University of California, Los Angeles

Professional Qualifications and Memberships

Since 2013: UK Registered Ground Engineering Professional
Since 2012: Member of Institution of Civil Engineers (CEng MICE)
Member of the British Geotechnical Association
Member of the British Tunnelling Society

Scholarships / Awards

2003: Philip Turner Prize for excellence in centrifuge modelling, Cambridge University
2003: Research Fellowship, St. John's College, Cambridge
2003: Scientific Instrument Makers' Post Graduate Award, The Worshipful Company of Scientific Instrument Makers

Experience with GCG

Dr Gary Choy joined the Geotechnical Consulting Group in 2006 and was a member of the company's team acting as Specialist Geotechnical Advisors to the Crossrail project in London. In 2008, he was seconded to Cementation Skanska and worked on DLR enhancement project, slope stabilisation and a major foundation scheme for a proposed power station.

Between 2012 and 2015, Dr Choy was an integral part of the monitoring team responsible for monitoring the existing London Underground assets during the construction of a mixed use development at Victoria in London and the upgrade of London Underground Victoria Station. He helped to develop the systems and interpreted the monitoring data, identified any displacement trends where trigger values might be breached, and presented daily monitoring reports to relevant stakeholders. He also had to ensure the monitoring contractor complies with the specifications, identifies faults and verifies any remedial measures required.

Dr Choy has extensive experience of damage risk assessments to third party infrastructure (e.g. tunnels, buildings, pipelines) due to various adjacent construction activities (e.g. tunnelling, excavation, site redevelopment). He worked on assessing the potential for building damage as a result of proposed works for the upgrade of London Underground Bank Station.

During the past eight years, he has been working with Thames Water Utilities Limited (TWUL). His role is to provide highly specialised pipeline and tunnel expertise to managers across the TWUL business (including Developer Services, Asset Management, Operations and Capital Delivery) to ensure excellent services to customers and operational continuity (as part of TWUL's Statutory and Regulatory obligations) and to protect whole life asset value. This involves reviewing technical submissions; liaising with developers, engineers, contractors and other third parties to ensure the proposed works can be undertaken safely and any affected assets are protected; risk assessments and development of mitigation measures.

2000: Student Prize, Geotechnical Division, Hong Kong Institute of Engineers

Service on technical / professional bodies

Since 2021: Member of the Project Steering Group for the new CIRIA Tunnel Management Guide

Since 2015: British representative to the ITA Working Group 2 (Research)

2013-18: Member of Geotechnical Engineering Advisory Panel

Countries worked

UK.

Languages (other than English)

Cantonese

This risk based impact assessment approach, initiated by GCG during Crossrail works, has been assisting various schemes, ranging from small development projects to large infrastructure schemes including Thames Tideway, London Underground Northern Line Extension (NLE), High Speed 2 (HS2), London Power Tunnel Phase 2, Silvertown Tunnel and Battersea Power Station. He has also advised TWUL Asset Managers on ensuring the safety of pressurised water tunnels during the crossings by the Tideway and NLE tunnels, and mineral extraction works.

Recently, he has worked with Affinity Water to evaluate the effects of the construction and operation of the proposed Western Rail Link to Heathrow on its pressurised water tunnels. He has also worked with other utility companies including UKPN and Anglian Water.

Dr Choy is currently the UK representative to the Research Group (WG2) of the International Tunnelling and Underground Space Association (ITA) and is preparing an extensive document on Tunnelling and Utilities at the ITA's request. He is also a member of the Project Steering Group for the new CIRIA Tunnel Management Guide.

Previous experience

Dr Choy completed his undergraduate degree in Civil Engineering at the Hong Kong University of Science and Technology, Hong Kong with first class honours in 2000. His honours thesis involved three-dimensional numerical analysis of diaphragm wall installation effects, for which he received an academic award.

From September 2000 to March 2004, he undertook research at the University of Cambridge, studying the effects of diaphragm walls construction on a nearby piled foundation. The investigation was undertaken by using small-scale models tested within the geotechnical centrifuge. Two major developments in centrifuge modelling were achieved: firstly, an instrumented model pile was developed which can measure base load, shaft friction, bending moment and normal stress distributions. The second major breakthrough was a new technique to simulate concreting of a diaphragm wall panel in-flight. Based on the results, a conceptual framework for this soil-structure interaction problem was developed.

In April 2003, Dr Choy was awarded a Research Fellowship from St. John's College, Cambridge, and he carried out further research in soil-structure interaction problems and the development of sensors based on MEMS (microelectromechanical system) technology for field monitoring. This technology allows the development of small, low power consumption and "cheap" sensors capable of measuring very small strain during various construction activities such as excavation and tunnelling. Dr Choy was also involved with research instrumenting existing tunnels to monitor the effects of adjacent tunnel construction works.