

# Tunnelling with passion

## Fresh insights from a young engineer's perspective at the World Tunnel Congress 2024

By Shenyao Yao, ATS Young Members Committee Member

Entering the bustling exhibition hall of the World Tunnel Congress in Shenzhen (WTC2024) was a surreal experience—an actual pinch-me moment for my first attendance. The atmosphere was electric, each booth telling a story of innovation and progress in tunnelling—awe-inspiring, from sleek models of high-speed rail tunnels to demonstrations of advanced drilling technologies.

AECOM's booth, amidst this sea of innovation, blossomed into a vibrant hub for our global tunnelling team. It was more than just a space, it was where stories were exchanged, laughter was shared, and connections deepened. Being part of AECOM's tunnelling team fills me with immense pride. Through this experience, I have gained profound insights into how our work transforms lives and communities. This year's theme, 'Tunnelling for a Better Life,' resonates deeply with our industry's commitment to making a meaningful impact.

The congress's technical sessions served as a gateway to global advancements in tunnel technology, offering deep insights into pioneering projects and innovative methodologies worldwide. I immersed myself in Singapore's Land Transport Authority's extensive 25-year journey with sprayed concrete lining tunnelling, explored Italy's forward-thinking environmental criteria for railway tunnel design, and gained invaluable knowledge from the Ontario Line South Tunnel's seamless integration into urban infrastructure. Closer to home, I am extremely proud of our local achievement—the Western Harbour Tunnel Package 2 by

AECOM Aurecon Joint Venture—which showcased our expertise with a technical session on segmental lining design. Seeing our team shine on such a global platform was incredibly rewarding.

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As the host nation, China showcased over 20,000 kilometres of tunnels at WTC2024, underscoring its steadfast commitment to expanding transportation networks and enhancing urban connectivity. Their extensive network, encompassing high-speed rail, road and water management tunnels, drives economic growth. China's leadership in the tunnelling industry sets a benchmark for collaboration and technology sharing, offering invaluable insights that can elevate global practices and foster international cooperation.

The technological advancements unveiled at WTC2024 were more than just engineering achievements; they represented glimpses into the future of tunnel construction and operation. Witnessing innovations like automated tunnel boring machines (TBMs)

underscored the potential for creating safer work environments by proactively managing risks. These advancements resonated with me professionally, highlighting how automation and precision can streamline processes, boost efficiency, and improve project outcomes. Furthermore, the focus on sustainability prompted me to consider how our industry can adopt eco-friendly materials and energy-efficient practices to minimise environmental impact. These experiences solidified my belief in technology's ability to propel our field forward while maintaining our commitment to safety, efficiency and sustainable development in tunnelling.

Beyond my responsibilities on the scientific committee, my congress experience became profoundly enriching when I had the opportunity to interpret for ITA President Arnold Dix during his meeting with the PRC Minister (People's Republic of China). Overcoming the language barrier and seamlessly conveying complex technical terms in real-time presented a stimulating challenge. Arnold's advice before we commenced—"Remember to breathe Shen"—proved invaluable; he anticipated the moment's intensity! With unwavering support from my team, I navigated the high-pressure and formal setting with confidence (Those two sleepless nights dedicated to mastering complex Chinese terminology certainly paid off!) It was a surreal blend of nerves and knowledge, but nothing a bit of caffeine and determination could not conquer!

I am deeply grateful to everyone who made my first WTC memorable. The friendships formed and knowledge gained have been invaluable, shaping my professional journey and personal growth. I eagerly look forward to our next reunion, where we can continue collaborating and innovating in tunnelling for a better life. With each experience, I gain a deeper appreciation for the impact of our work on communities worldwide. Let's harness this momentum to create lasting positive changes and build a future where our infrastructure is a cornerstone of progress and connectivity.

