

# Curriculum Vitae

*Wenhui Yang*

## Education Experience

- Ph.D. in Structural and Geotechnical Engineering, con lode (with honors)** **11 Sep 2023**  
Department of Structural and Geotechnical Engineering, Sapienza University of Rome, Rome, Italy  
Dissertation: *Impact of a Large-Diameter Shallow Twin-Tunnel Excavation on Adjacent High-Speed Rail Bridges and Related Protective Measures*
- Ph.D. in Transportation Engineering** **22 Nov 2023**  
School of Transportation, Southeast University, Nanjing, China,  
Dissertation: *Study on the Effects and Protection Measures of Shallow Large Shield Tunnels Crossing Existing High-speed Railway Bridge Pile*
- M.S. in Bridge and Tunnel Engineering** **26 June 2017**  
School of Highway, Chang'an University, Xi'an, China  
Thesis: *Study on the Deterioration Mechanism and the Health Evaluation System of Loess Highway Tunnel Structure under Variable Load*
- B.S. in Urban Underground Space Engineering** **1 July 2014**  
School of Mining Engineering, Taiyuan University of Technology, Taiyuan, China

## Research Interests

- Automated numerical simulation of the tunnel excavation
- Interaction between tunnel and pile foundation construction
- Numerical simulation and monitoring analysis of geotechnical construction

## Language and Skill

- **Language:** Chinese - Native Proficiency; **English** - Fluent; **Italian** – Basic (A2)
- **Software:** FEM: **Plaxis**, **Abaqus**, Ansys; PL: **Python**, Fortran; OA: Origin, Office, AutoCAD;
- **Professional Skill:** Geotechnical Numerical Simulation; Interaction of Python in Finite Element Software (i.e., Plaxis, Abaqus); Finite Element Secondary Development;

## Research Experience

- The Tongjing Road Tunnel passes beneath the existing Shanghai-Nanjing Intercity Railway bridge** **2020-2023**
- Project features: Two 13.2m tunnels; 10m buried depth; the first project of large and shallow shield tunneling through an operational high-speed rail bridge in China
  - Participation: **Primary participant;** conducted tunnels construction numerical simulations (Plaxis), evaluated protective schemes, and performed on-site monitoring and analysis
- The implementation of a finite element for dynamic analyses with degrees of freedom for interstitial pressure** **2022**
- Project features: Dynamic analyses; ABAQUS subroutine application
  - Participation: **Primary participant;** Abaqus UEL development and verification
- Three proposed bridges span over the existing Changzhou Metro Line 1 project** **2018-2019**
- Project features: 3m clear spacing between bridge pile and the operating tunnel;

- Participation: **Primary participant**, conducted bridges construction numerical simulations(Abaqus), performed on-site monitoring and analysis, and established the control standard of tunnel deformation.

**Yangzhou Shouxiu Tunnel Hangzhou Shouxiu Tunnel Operation and Maintenance** (Jiangsu construction system science and technology project No.2016ZD70) **2017-2018**

- Project features: 14m large-diameter underwater shield tunnel.
- Participation: Participant; performed long-term on-site monitoring, lining cracking safety assessment (Ansys)

**Structural Deterioration Mechanism and Evaluation of Xin Zhuangling Loess Tunnel** (National natural science foundation of China No.51378071) **2015-2017**

- Project features: Separated highway tunnel, expansive loess soil
- Participation: Participant; conducted large-scale model tests, proposed health evaluation system

## Honors and Awards

- Dissertation Defense: con lode (with honors), Sapienza University of Rome, 2023.
- CSC(Chinese Scholarship Council) Scholarship, 2020
- Junior scholarship, Sapienza University of Rome, 2022
- Excellent poster award of the 1th EUUS conference, 2019

## Main Publications

- Yang, W., Boldini, D., & Zhang, D. (2023). Some observations on numerical modelling of tunnelling-induced soil movements by a displacement-controlled technique. *10th European Conference on Numerical Methods in Geotechnical Engineering*, London. <https://doi.org/10.53243/NUMGE2023-310>
- Yang, W., Zhang, D., & Wang, A. (2022). Field measurement analysis of the influence of simultaneous construction of river channel and bridge on existing double shield tunnels. *Underground Space*, 7(5), 812-832. <https://doi.org/10.1016/j.undsp.2021.12.008>
- Yang, W., Zhang, D., Yan, Q., & Mao, Z. (2020). Numerical analysis on stability of slope reinforced by combination of deep and shallow roots. *Journal of Southeast University (Natural Science Edition)*, 50(1), 161-168. <http://doi.org/10.3969/j.issn.1001-0505.2020.01.021>
- Liu, B., Zhang, D., Yang, W., & Li, X. (2022). Prediction formula and its application of underlying existing tunnel heave induced by deep excavation based on case statistics. *Journal of Central South University (Natural Science Edition)*, 53(4):1416-1428. <https://dx.doi.org/10.11817/j.issn.1672-7207.2022.04.026>
- Song, W., Lai, H., Liu, Y., Yang, W., & Zhu, Z. (2019). Field and laboratory study of cracking and safety of secondary lining for an existing highway tunnel in loess ground. *Tunnelling and Underground Space Technology*, 88, 35-46. <https://doi.org/10.1016/j.tust.2019.02.018>

## Presentations

- Yang, W., "Some observations on numerical modelling of tunnelling-induced soil movements by a displacement-controlled technique". (Presented in London, UK, the 10th European Conference on Numerical Methods in Geotechnical Engineering, 26-28 June, 2023)
- Yang, W., "Study on the Health Evaluation System of Loess Tunnel Structure Based on Model Tests" (Presented in Wuhan China, the 1th International Conference on Exploration and Utilization of Underground Space, 15-18 Dec, 2019).
- Yang, W., "Numerical Analysis of Stability of Slope Reinforced by Combination of Deep and Shallow Roots" (Presented in Taiyuan China, *the Academic Seminar on Mechanical Properties and Engineering Practice of Soil Filling*, 27-29 Sep, 2019).