

Mingzhao Yu

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EDUCATION

- Southwest Jiaotong University, China** 09/2020-06/2023
- Master of Civil and Hydraulic Engineering, Tunnel Engineering GPA: 3.18
- Southwest Jiaotong University, China** 09/2016-07/2020
- Bachelor of Engineering, **Civil Engineering** Last Two Years GPA: 3.56 (**RANK 11%**)
 - Six Times Scholarships Awarded by Southwest Jiaotong University 2017-2022

RESEARCH ACHIEVEMENTS

Patents

- Frost-resistant Assembled Initial Support Structure of Tunnel And Construction Method Thereof (Fifth Author) 11/2021
- A kind of Anti-drainage Board for Reducing Frost Heaving Force in Cold-region Tunnel (Third Author) 07/2021
- A Liquid Carbon Dioxide Cleaning Machine and Cleaning Method (Third Author) 09/2021
- A Combined Waterproof Structure for Reducing Frost Heave in Tunnels (Third Author) 07/2021
- A Rapid Construction Method for Tunnel Crossing Large Cave Cavities (Fourth Author) 05/2021

Publications

- Mingzhao Yu (Third author). "Research on the Influence Law of Meteorological Elements on the Radial Temperature Field of Tunnels in Cold Areas". *China Civil Engineering Journal*, EI Index, DOI: 10.15951/j.tmgcxb.2021.s1.002
- Mingzhao Yu (Sixth author). "Analysis and Prediction of Mechanical Characteristics of Corrugated Plate as Primary Support in Tunnels". *Tunnelling and Underground Space Technology*, SCI Index, DOI: 10.1016/j.tust.2021.103845

SELECTED RESEARCH EXPERIENCES

Study On Frost-heaving of Water Behind Tunnel Lining and Anti-Freezing Countermeasures in Cold Regions

Master's Degree Thesis 12/2021-05/2023

- Investigated the changing pattern of air and ground temperature in the Guanjiaoshan Tunnel by analysing the collected data from field tests and conducting the numerical simulation model
- Performed the thermal-mechanical coupling and analysis via Midas GTS NX and FLAC^{3D} to study the mechanical properties of the secondary lining under the frost heave behind the supporting structure, working out the best insulation method by simulating different experimental conditions on the arch wall rock

Research on Freeze-resistant Support Mechanism and Structure of Rocky Tunnel in Cold Area Based on Thermal-Hydraulic-Mechanical Coupling

01/2022-05/2023

Research Assistant, Funded by the National Natural Science Foundation of China (No. 52178396)

- Studied the factor of safety of tunnels in jointed rock based on different variables using 3DEC and FLAC^{3D}
- Utilised the discrete element software 3DEC to study the effect of prestressed anchors on the stability of tunnels in jointed rock and the influence of pre-stressed anchor advanced support on the stability of tunnel excavation based on numerical simulation results

RELEVANT WORK AND INTERNSHIP EXPERIENCES

Researcher, SINOSTEEL MAANSHAN GENERAL INSTITUTE OF MINING RESEARCH CO.,LTD 07/2023-11/2023

- Received professional training from the company and was mainly responsible for the stability research of mining-related underground structures, such as underground mine support

Summer Intern, China Railway Design Corporation 07/2022-08/2022

- Used Midas-GTS NX and ANSYS to construct the tunnel model and conduct the numerical simulation calculation of tunnel stress-strain and tunnel settlement force characteristics for the viability evaluation
- Successfully completed the analysis report to research the impact of tunnel excavation on the existing trench above

Research Assistant, THE 23RD METALLURGICAL CONSTRUCTION GROUP CO., LTD. OF MINMETALS 12/2020-11/2021

- Designed the temperature field and stress field monitoring plan of a tunnel in the cold region
- Monitored the meteorological data outside of the tunnel and the inside tunnel temperature for data analysis, researching the relationship between the outside meteorology and inside conditions

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KEY COURSES IN TUNNELING ENGINEERING (MASTER DEGREE)

Tunneling Mechanics, Reliability of Tunnel and Underground Structure, Design Method of Tunnel and Underground Engineering, Numerical Calculation of Geotechnical Engineering, Multiple-field Coupling for Tunnel and Underground Engineering

SERVICE AND VOLUNTEER EXPERIENCES

Technical Department, Students' Union, School of Civil Engineering, Southwest Jiaotong University 10/2016-09/2018

- Responsible for the arrangement and planning of student activities such as sports day activities and basketball games
- Made posters and wrote summary reports of department activities

Covid-19 Volunteer for Campus Epidemic Prevention Work

09/2020-06/2022

- Regularly cleaned the campus public areas such as libraries, laboratories
- Counted the number of infected students