

Minghao Chen

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EDUCATION

Southwest Jiaotong University (SWJTU)

Bachelor of Engineering in Civil Engineering

Chengdu, CN

Expected Jul 2019

- **Core courses:** Civil Engineering Geology, Foundation Engineering, Soil Mechanics, Practice of Geological Civil Engineering, Digital Terrain Measurement, Underground Utilization, Mountain Tunnel

RESEARCH EXPERIENCE

Design of urban underground drainage system based on LID

Team Leader

Chengdu, CN

Nov 2017 – Apr 2018

- Conducted a survey of the waterlogging events in Chengdu and utilized IBM SPSS to analyze the data;
- Established a mathematical model and utilized MATLAB to locate the potential waterlogging areas;
- Employed Revit and AutoCAD to design the road underground drainage system based on LID;
- Used MATLAB for neural network prediction based on historical precipitation data of Chengdu, and simulated and compared effects of the design between Revit and AutoCAD;
- Independently completed the research paper and presented it in **The ASCE MIDPAC 2018 Water Research Paper Competition** and got the third place in final competition with the second place in the presentation.

Research on interface characteristics of shotcrete and rock in high temperature and low relative humidity (National Project)

Undergraduate Team Leader

Chengdu, CN

May 2017 - Present

- Designed cubic specimens made of steel fiber reinforced concrete and cured them under different temperature and humidity conditions to simulate the real environment;
- Improved the core-drilling and drawing method based on the traditional one to diminish the dilaceration of bond interface caused by loading eccentricity and improve the accuracy and stability of determined results;
- Observed the microscopic structures of bonding interfaces between shotcrete and rock by 3D video microscope to explore the influence of temperature and relative humidity on the bond strength;
- Found the bond strength of shotcrete with rock decreased seriously under dry and hot environment, which may result in debond and crack.

Network design of underground logistics channel based on simulated annealing algorithm

Research Assistant

Chengdu, CN

Nov 2017 – May 2018

- Self-learned operations research and designed simulated annealing algorithm to achieve global search of the planning model results, and finally got the optimal solution for channel network design;
- Used Python to draw key diagrams such as design diagrams for all channels of underground logistics systems and comparison chart for cargo volume of each logistics park for demand points;
- Issued an article "Research on network design of underground logistics channel based on simulated annealing algorithm" in the CSCD journal (also ASCE library submission) as the second author.

PROJECT EXPERIENCE

The ASCE 2018 National Student Steel Bridge Competition

Team Leader

Sacramento, CA

Dec 2017- Apr 2018

- Designed the bridge painting based on Sichuan face changing opera, which showed the boldness of the structure with extremely contrasting and dramatic colors. Win the **first place** in display;
- Designed the Pratt truss and original fish-bellied beams to reduce the cost and weight of the structure and improve the constructability of the structure. Win the third place in lightness;
- Self-learned cutting, welding, polishing, etc. and constructed the steel bridge with teammates;
- Optimized the assembly sequence and staffing to shorten the assembly time, which significantly contributed to the fifth ranking in the final MIDPAC competition.

Pengjiawan bridge reconstruction

Research Assistant

Macheng, CN

Aug 2017 – Dec 2017

- Collected historical hydrogeological data and investigated the current situation of the bridge among the neighbor residents;
- Used Real Time Kinematic to measure the elevation data;
- Designed the pile foundation for the bridge with Midas Civil based on the local overburden (mainly clay).

Practice of geological civil engineering

Team Leader

Chengdu, CN

Jul 2017 – Aug 2017

- Conducted engineering geological investigation at Longquan Mountain, Chengdu;
- Wrote a segmented geological report and drew a geological section of Longquan Mountain.

PUBLICATION

Chuankun Liu, **Minghao Chen**, et al.

“Research on network design of underground logistics channel based on simulated annealing algorithm”,
Journal of Highway and Transportation Research and Development, excepted issued Oct 2019.

(ASCE Library submission)

MEETING EXPERIENCE

The 31st Annual Pacific District Conference

Representative of Southwest Jiaotong University

Berkeley, CA

Nov 2018

ACCOMPLISHMENTS

Patent	Zhuang Rencheng, Guo Youxing, Chen Minghao, Liu Hanliang, Pan Jingyi, Wang Shunyi. Issued. Real-time haze monitoring system based on thing networking. P.R.China Patent 201720451333.5.	
Scholarships	SWJTU Merit-based Scholarship SWJTU Innovation Scholarship	<i>2015-2017 Oct 2016</i>
Awards	The ASCE MIDPAC 2018 Steel Bridge Competition First Prize in Display The ASCE MIDPAC 2018 Water Research Paper Competition Third Place The Mathematical Contest in Modeling Meritorious Winner China Undergraduate Mathematical Contest in Modeling First Prize The 10th National Undergraduate Social Practice & Science Contest On Energy Saving & Emission Reduction Third Place	<i>Apr 2018 Apr 2018 Apr 2017 Sep 2016 May 2017</i>
Affiliations	Member of American Society of Civil Engineers Member of Chi Epsilon Global Community President of the Southwest Jiaotong University Estate Elite Club Honorary member of the SWJTU Mathematical Modeling Association Academic Department	

Skills and Additional Information

Programming	MATLAB, C++, Python
Software	ANSYS, AutoCAD, Revit, Sketch up, IBM SPSS statistics, Original, Midas Civil
MOOC	Rock Mechanics, Solid Mechanics, everyone to Python
Interests	Basketball, Marvel, photography, reading, traveling, riding, fitness