

Curriculum Vita

Chongchong Qi

1. PERSONAL DETAILS

Affiliations: School of Resources and Safety Engineering,
Central South University, Changsha, China.

Position: Professor

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2. QUALIFICATIONS

- B.Sc. (Engineering), China University of Mining and Technology (CUMT), 2016
- Ph.D. (Engineering), The University of Western Australia (UWA), 2019

3. EMPLOYMENT RECORD

DATES -> DETAILS OF APPOINTMENT

- 2019.6 – Present: Professor, School of Resources and Safety Engineering, Central South University, Changsha, China.
- 2019.7 – 2019.8: Visiting Professor, Department of Civil Engineering, INHA University, Incheon, South Korea.
- 2019.6 – 2019.7: Visiting Professor, Department of Geotechnical Engineering, University of Transport Technology, Honai, Vietnam.

4. RESEARCH INTERESTS

- Cemented paste backfill: Machine-learning aided design for cemented paste backfill, Intelligent backfill system, integrated backfill system, flocculation and sedimentation of fresh tailings slurry, CPB mix design, CPB pipe transport, functional backfill materials, Geomechanics of CPB (i.e., the interaction between CPB and rock mass), etc.

- Utilization of inorganic waste and residues: Tailings recycling, waste minimization, environmental assessment, etc.
 - Green or sustainable mining: Pollution reduction, mining-induced impacts minimization (i.e., dust and noise control), reclamation, mine closures, water retention, etc.
 - Materials science, especially cementitious materials: Sustainable cementitious materials, cement hydration, geopolymer, multi-scale experimental investigation, first-principles calculation, density functional theory, etc.
 - Artificial intelligence: Combined AI and geotechnical engineering, such as slope stability, underground stopes stability, materials property prediction, back-analysis of rock mass properties, etc.
 - Big data: International database project for the mining industry, especially CPB, data safety, security, and reliability, etc.
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5. PROFESSIONAL AFFILIATIONS

- Technical Committee Member: TC309 Machine Learning and Big Data, ISSMGE.
 - Member: Concrete Institute of Australia.
 - Member: Australian Geomechanics Society.
 - Member: International Society for Soil Mechanics and Geotechnical Engineering.
 - Member: American Society of Civil Engineers.
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6. EDITORSHIPS

- **Lead Guest Editor** of Special Issue ‘Data Mining in Civil Engineering’ in SCI journal ‘Advances in Civil Engineering’.
- **Guest Editor** of Special Issue ‘Booming for Backfill Materials’ in SCI journal ‘Advances in Materials Science and Engineering’.
- **Guest Editor** of Special Issue ‘Mitigating the Impacts of Mining’ in SCI journal ‘International Journal of Minerals, Metallurgy and Materials’.
- **Editorial Board Member** of International Journal of Minerals, Metallurgy, and Materials, 2019-Present (Springer, index in SCI, EI, Scopus, Google Scholar, etc.).
- **Editorial Board Member** of the Editorial Board of the Recent Patents on Computer Science, 2019-Present (Bentham Science Publication, indexed in EI, Scopus, Google

Scholar, etc.).

- **Invited Chair** of a symposium ‘Computational and Experimental investigation on cement-based materials’ of The International Conference on Computational & Experimental Engineering and Sciences, April 26-30, 2020, Budva, Montenegro.
 - **Invited General Chair and Editor** of The 2nd International Conference on Communication, Network and Artificial Intelligence, December 27-29, 2019, Guangzhou, China.
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7. CONFERENCE COMMITTEE MEMBERSHIPS

- Year 2020

- **Invited Advisory Board Member** of The International Conference on Smart Energy Systems, February 25-26, 2020, University of Cambridge, Cambridge City, United Kingdom.
- **Invited TPC Member** of The 5th International Conference on Research in Intelligent and Computing in Engineering, June 3-4, 2020, Thu DAU Mot University, Vietnam.
- **Invited TPC Member** of The Japan International Conference On Recycling And Waste Management, May 14-15, 2020, Osaka, Japan.
- **Invited TPC Member** of The 2020 International Conference on Green Energy, Environment and Sustainable Development, April 24-25, 2020, Wuhan, China.
- **Invited TPC Member** of The International Conference on Minerals, Metallurgy, and Materials, March 23-25, 2020, Valencia, Spain.

- Year 2019

- **Invited TPC Member** of The 3rd International Conference on Renewable & Non Renewable Energy Sources, November 04-05, 2019, Kuala Lumpur, Malaysia.
- **Invited TPC Member** of The Fourth International Conference on Energy Engineering and Environmental Protection, November 19-21, 2019, Xiamen, China.
- **Invited TPC Member** of The 7th International Conference on Geology Resource Management and Sustainable Development, December 28-29, Beijing, China.
- **Invited TPC Member** of The 7th International Symposium on Project Management, July 6-7, 2019, Chongqing, China.

8. INVITATION AT CONFERENCES & Seminars

- **Invited Keynote Speaker:** International Conference on Smart Energy Systems, 25-26 February 2020, University of Cambridge, London, UK.
- **Invited Keynote Speaker:** Symposium 'Computational and Experimental investigation on cement-based materials' of International Conference on Computational & Experimental Engineering and Sciences, April 26-30, 2020, Budva, Montenegro.
- **Invited Keynote Speaker:** International Conference on Innovative Applied Energy, 14-15 March 2019, University of Oxford, London, UK.
- **Invited Seminar Talk:** Seminar talk titled 'Application of Artificial Intelligence in Construction Materials', University of Transport and Technology, July 15, 2019, Hanoi, Vietnam.
- **Invited Seminar Talk:** Seminar talk titled 'Quantum Mechanics in Cement Chemistry', University of Transport and Technology, July 24, 2019, Hanoi, Vietnam.
- **Invited Seminar Talk:** Seminar talk titled 'Investigating cemented paste backfill (CPB) from materials science, artificial intelligence, quantum mechanics and geomechanics points of view', Inha University, August 19, 2019, Incheon, South Korea.
- **Invited Speaker:** 7th PEIYANG Forum for Young Scholars, 7-10 April 2019, Tianjin University, Tianjin, China.
- **Invited Speaker:** 1st International Forum for Young Scholars, 20-23 December 2018, Hohai University, Nanjing, China.
- **Invited Speaker:** 4th International Forum for Young Scholars, 18-19 December 2018, Sichuan University, Chengdu, China.
- **Invited Speaker:** 3rd International Forum for Young Scholars, 10-11 November 2018, Chongqing University, Chongqing, China.
- **Invited Speaker:** 2nd International Young Scholars Forum on Energy, Evolution and Challenges, 5-7 June 2018, China University of Mining and Technology, Xuzhou, China.
- **Invited Speaker:** 1st International Young Scholars Forum on Energy Science and Engineering, 27-29 May 2018, China University of Petroleum, Qingdao, China.
- **Invited Speaker:** Chinese Young Scholar Forum, 18 November 2017 Curtin University Bentley, Perth, Australia.
- **Invited Seminar Talk:** Seminar talk titled 'Artificial Intelligence in Civil & Mining

Engineering-An application in hangingwall stability prediction', Joint-workshop between CUMT and UWA, University of Western Australia, September 28-29, 2017, Perth, Australia.

- 21st International Seminar on Paste and Thickened Tailings 11-13 April 2018 Rendezvous Hotel Perth Scarborough, Perth, Australia.
 - 1st International Symposium on Mechanics, 9-12 July 2018 Aberdeen, United Kingdom.
 - State Natural Resource Management (NRM) and Coastal Conference 2017, 29-31 August 2017, Curtin University Bentley, Perth, Australia.
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9. REVIEW FOR JOURNALS AND CONFERENCES

- Journal of Cleaner Production (SCI, Times = 6)
- Computers & Operations Research (SCI, Times = 1)
- Construction and Building Materials (SCI, Times = 6)
- Composites Part B: Engineering (SCI, Times = 1)
- IEEE Transactions on Neural Networks and Learning Systems (SCI, Times = 1)
- Powder Technology (SCI, Times = 4)
- Environmental Earth Sciences (SCI, Times = 2)
- Engineering Structures (SCI, Times = 2)
- Engineering Application of Artificial Intelligence (SCI, Times = 1)
- Tunnelling and Underground Space Technology (SCI, Times = 2)
- IEEE Access (SCI, Times = 6)
- PLOS ONE (SCI, Times = 1)
- Journal of Performance of Constructed Facilities (SCI, Times = 1)
- International Journal of Minerals, Metallurgy and Materials (SCI, Times = 6)
- Ingenieria E Investigacion (SCI, Times = 1)
- Bulletin of Engineering Geology and the Environment (SCI, Times = 1)
- Advances in Civil Engineering (SCI, Times = 2)
- International Journal of Computational Methods (SCI, Times = 1)
- Technical Gazette (SCI, Times = 3)
- International Journal of Mining and Mineral Engineering (Times = 1)

- The Open Cybernetics & Systemics Journal (Times = 2)
 - Journal of Rock Mechanics and Geotechnical Engineering (Times = 1)
 - The Fourth International Conference on New Material and Chemical Industry, November 16-18, 2019, Xiamen, China.
 - International Workshop on Environment and Geoscience, June 15-17, 2018, Hangzhou, China
 - The Third International Conference on Energy Engineering and Environmental Protection, November 19-21, 2018, Sanya, China
 - The Second International Conference on Numerical Modelling in Engineering (NME 2019), August 19-22, 2019, Beijing, China (Times = 4)
 - The 3rd International Conference on Computer Science and Application Engineering, October 22-24, 2019, Sanya, China.
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10. PUBLISHED JOURNAL PAPERS

- **Qi, C.C.*** & Fourie, A. (2019). Cemented paste backfill for mineral tailings management: Review and future perspectives. *Minerals Engineering*, 144, 106025.
- **Qi, C.C.***, Fourie, A., Chen, Q.S., & Dong, X.J. (2019). Analytical solution for stress distribution around arbitrary stopes using evolutionary complex variable methods. *International Journal of Geomechanics*, 19(10), 04019113.
- Zhao, X., Fourie, A., & **Qi, C.C.*** (2019). An analytical solution for evaluating the safety of exposed face in paste backfill stope with considering arching phenomenon. *International Journal of Minerals, Metallurgy, and Materials*, In Press.
- Liu, L., Zhu, C., **Qi, C.C.***, Wang, M., Han, C., Zhang, B., & Song, K. I. (2019). Effects of curing time and ice-to-water ratio on performance of cemented paste backfill containing ice slag. *Construction and Building Materials*, In Press.
- He, Y., Chen, Q.S., **Qi, C.C.**, Zhang, Q.L. & Xiao, C.C. (2019). Lithium slag and fly ash-based binder for cemented fine tailings backfill. *Journal of Environmental Management*, 248, 109282.
- **Qi, C.C.***, Fourie, A., Chen, Q.S., & Liu, P.F. (2019). Application of first-principles theory in ferrite phases of cemented paste backfill. *Minerals Engineering*, 133, 47-51.
- Liu, L., Yang, C., **Qi, C.C.***, Zhang, B., Guo, L.J. & Song, K. I. (2019). An experimental study on the early-age hydration kinetics of cemented paste backfill. *Construction and*

Building Materials, 212, 283-294.

- **Qi, C.C.*** & Fourie, A. (2019). Numerical investigation of the stress distribution in backfilled stopes considering creep behaviour of rock mass. *Rock Mechanics and Rock Engineering*, <http://doi.org/10.1007/s00603-019-01781-0>.
- Yang, L., Qi, C.C.*, Lin, X.S., Li, J.M., & Dong, X.J. (2019). Prediction of dynamic increase factor for steel fibre reinforced concrete using a hybrid artificial intelligence model. *Engineering Structures*, 189, 309-318.
- **Qi, C.C.**, Liu, L.*, He, J.Y., Chen, Q.S., Yu, L.J., & Liu, P.F. (2019). Understanding cement hydration of cemented paste backfill: DFT study on water adsorption at tricalcium silicate (111) surface. *Minerals*, 9(4), 202, <https://doi.org/10.3390/min9040202>.
- **Qi, C.C.**, Tang, X.L.*, Dong, X.J.*, Chen, Q.S., Fourie, A., & Liu, E.Y. (2019). Towards Intelligent Mining for Backfill: A genetic programming-based method for strength forecasting of cemented paste backfill. *Minerals Engineering*, 133, 69-79.
- Liu, L.*, Zhu, C., **Qi, C.C.***, Zhang, B., & Song, K. I. (2019). A microstructural hydration model for cemented paste backfill considering internal sulfate attacks. *Construction and Building Materials*, 211, 99-108.
- Liu, Y.K., Zhang, Q.L., Chen, Q.S., **Qi, C.C.**, Su, Z. & Huang, Z.D. (2019). Utilisation of water-washing pre-treated phosphogypsum for cemented paste backfill. *Minerals*, 9(3), 175.
- Feng, Y., Kero, J., Yang, Q., Engström, F., Samuelsson, C., Chen, Q.S., & **Qi, C.C.** (2019). Mechanical activation of granulated copper slag and its effect on hydration kinetics and mechanical performance of blended cement paste. *Materials*, 12(5), 772.
- **Qi, C.C.**, Chen, Q.S., Fourie, A., Tang, X.L., Zhang, Q.L., Dong, X.J. & Feng, Y.* (2019). Constitutive modelling of cemented paste backfill: A data-mining approach. *Construction and Building Materials*, 197, 262-270.
- Liu, L.*, Fang, Z.Y, **Qi, C.C.***, Zhang, B., Guo, L.J, & Song, K. I. (2019). Numerical study on the pipe flow characteristics of the cemented paste backfill slurry considering hydration effects. *Powder Technology*, 343, 454-464.
- **Qi, C.C.***, Fourie, A., Ma, G.W., & Tang, X.L. (2018). A hybrid method for improved stability prediction in construction projects: a case study of hangingwall stability. *Applied Soft Computing*, 71, 649-658.

- Zhou, Z.Y., Hu, P., **Qi, C.C.***, Niu, T.P.*, Li, M., Tian, L. (2018). The influence of ventilation arrangement on the mechanism of dust distribution in Woxi Pithead. *Shock and Vibration*, Article ID 8928120, 13 pages, <https://doi.org/10.1155/2018/8928120>.
- **Qi, C.C.**, & Chen, Q.S.* (2018) Evolutionary random forest algorithms for predicting the maximum failure depth of open stope hangingwalls. *IEEE Access*, 6, 72808-72813, <https://doi.org/10.1109/ACCESS.2018.2880009>.
- **Qi, C.C.**, Fourie, A., Chen, Q.S.*, Tang, X.L., Zhang, Q.L. & Gao, R.G.* (2018). Data-driven modelling of the flocculation process on mineral processing tailings treatment. *Journal of Cleaner Production*, 196, 505-516.
- **Qi, C.C.**, & Tang, X.L.* (2018) A hybrid ensemble method for improved prediction of slope stability. *International Journal for Numerical and Analytical Methods in Geomechanics*, 42(15), 1823-1839.
- Liu, L., Fang, Z.Y, **Qi, C.C**, Zhang, B., Guo, L.J, & Song, K. I. (2018). Experimental investigation on the relationship between pore characteristics and unconfined compressive strength of cemented paste backfill. *Construction and Building Materials*, 179, 254-264.
- **Qi, C.C.***, Chen, Q.S.*, Fourie, A., & Zhang, Q.L. (2018). An intelligent modelling framework for mechanical properties of cemented paste backfill. *Minerals Engineering*, 123, 16-27.
- **Qi, C.C.***, & Fourie, A. (2018). A Real-Time Back-Analysis Technique to Infer Rheological Parameters from Field Monitoring. *Rock Mechanics and Rock Engineering*, 51(10), 3029-3043.
- Dong, X.J., Karrech, A., Basarir, H., Elchalakani, M., & **Qi, C.C.** (2018). Analytical solution of energy redistribution in rectangular openings upon in-situ rock mass alteration, *International Journal of Rock Mechanics and Mining Sciences*, 106, 74-83.
- **Qi, C.C.**, Fourie, A., Chen, Q.S.*, & Zhang, Q.L. (2018). A strength prediction model using artificial intelligence for recycling waste tailings as cemented paste backfill. *Journal of Cleaner Production*, 183, 566-578.
- **Qi, C.C.**, Chen, Q.S., Fourie, A., Zhao, J.W.*, & Zhang, Q.L. (2018). Pressure drop in pipe flow of cemented paste backfill: Experimental and modeling study. *Powder Technology*, 333, 9-18.

- Chen, Q.S., Zhang, Q.L., **Qi, C.C.***, Fourie, A., & Xiao, C.C. (2018). Recycling phosphogypsum and construction demolition waste for cemented paste backfill and its environmental impact. *Journal of Cleaner Production*, 186, 418-429.
 - Lu, H.J., **Qi, C.C.***, Chen, Q.S., Gan, D.Q., Xue, Z.L., & Hu, Y.J. (2018). A new procedure for recycling waste tailings as cemented paste backfill to underground stopes and open pits. *Journal of Cleaner Production*, 188, 601-612.
 - **Qi, C.C.**, Fourie, A., & Zhao, X.* (2018). A novel back-analysis method for stope displacements using gradient boosted regression tree and firefly algorithm. *Journal of Computing in Civil Engineering*, 32(5), 04018031, [http://doi.org/10.1061/\(ASCE\)CP.1943-5487.0000779](http://doi.org/10.1061/(ASCE)CP.1943-5487.0000779).
 - **Qi, C.C.**, Fourie, A., & Chen, Q.S.* (2018). Neural network and particle swarm optimization for predicting the unconfined compressive strength of cemented paste backfill. *Construction and Building Materials*, 159, 473-478.
 - **Qi, C.C.***, Fourie, A., Ma, G.W., Tang, X.L., & Du, X.H. (2017). Comparative study of hybrid artificial intelligence approaches for predicting hangingwall stability. *Journal of Computing in Civil Engineering*, 32(2), 04017086, [http://doi.org/10.1061/\(ASCE\)CP.1943-5487.0000737](http://doi.org/10.1061/(ASCE)CP.1943-5487.0000737).
 - **Qi, C.C.***, Fourie, A., Du, X. & Tang X.L (2018) Prediction of open stope hangingwall stability using random forests, *Natural Hazards*, 92(2), 1179-1197.
 - **Qi, C.C.***, & Tang, X.L. (2018) Slope stability prediction using integrated metaheuristic and machine learning approaches: A comparative study, *Computers & Industrial Engineering*, 118, 112-122.
 - Chen, Q.S., Zhang, Q.L., Fourie, A., Chen, X. & **Qi, C.C.** (2017). Experimental investigation on the strength characteristics of cemented paste backfill in a similar stope model and its mechanism. *Construction and Building Materials*, 154, 34-43.
 - Li, G. C., **Qi, C. C.***, Sun, Y. T., Tang, X. L., & Hou, B. Q. (2017). Experimental Study on the Softening Characteristics of Sandstone and Mudstone in Relation to Moisture Content. *Shock and Vibration*, Article ID: 4010376, 14 pages, <http://doi.org/10.1155/2017/4010376>.
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11. PRIZES AND AWARDS (LAST FOUR YEARS)

- 2019: UWA Travel Award.

- 2019: Outstanding Reviewer, Engineering Structures, Elsevier.
- 2018: Outstanding Reviewer, Journal of Cleaner Production, Elsevier.
- 2018: Outstanding Reviewer, Powder Technology, Elsevier.
- 2017: Research Award, Western Australia Chinese Scientists Association (WACSA).
- 2016: UWA SIRF (Scholarships for International Research Fees), University of Western Australia
- 2016: State Scholarship Fund, China Scholarship Council
- 2016: First prize for excellent undergraduate thesis, China
- 2016: Excellent undergraduate student, China University of Mining and Technology
- 2015: Government-sponsored Study Abroad Programs for Outstanding Undergraduate, China
- 2015: The National Scholarship, China
- 2015: The Caterpillar Scholarship, China University of Mining and Technology
- 2015: The Second Prize of National English Contest for College Student, China
- 2015: The Second Prize of National Mining Engineering Practical Work Contest, China
- 2015: The Second Prize of National Certification Cup Mathematical Modelling, China