ACADEMIC CURRICULUM VITAE

Professor / Researcher / Academic Leader

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Profile Snapshot

Dr. Yashar Pourrahimian is a Professor of Mining Engineering at the University of Alberta and Associate Dean, Undergraduate Studies for the Department of Civil and Environmental Engineering and the School of Mining and Petroleum Engineering. His academic work integrates mine planning, surface mining systems, mathematical optimization, simulation, artificial intelligence, and digital transformation in mining. His research focuses on advanced decision-support models for mine design, production scheduling, equipment selection, and risk-aware mining operations. He has extensive teaching experience in surface mining methods, mine design, mining systems, and project-based engineering education. His leadership contributions include undergraduate and graduate program administration, curriculum development, accreditation, student mentorship, and industry engagement. His work supports more efficient, sustainable, and safe mining operations driven by technology.

1. Profile Summary

Dr. Yashar Pourrahimian is a Professor of Mining Engineering at the University of Alberta whose academic work advances mine planning, surface mining systems, and technology-enabled decision-making in the mining industry. His research integrates mathematical optimization, artificial intelligence, data-driven optimization, simulation, data analytics, and digital-twin concepts to develop decision-support models for mine design, production scheduling, equipment selection, stockpile management, and risk-aware operational planning. His contributions bridge theoretical modelling and practical mining applications, with emphasis on improving productivity, sustainability, safety, and system-level performance in modern mining operations. He has extensive experience in teaching and curriculum development in surface mining methods, mine design, mining systems, and project-based engineering education. In addition to his research and teaching, he contributes to institutional leadership through undergraduate and graduate program administration, accreditation, curriculum renewal, student mentorship, and industry engagement. His professional impact is reflected in his work to modernize mining engineering education, strengthen university–industry connections, and advance the use of AI, optimization, and emerging digital technologies in the mining sector.

2. Academic Appointments

Period	Academic Rank / Role	Institution	Key Notes
July 2025–Present	Professor	University of Alberta	Leads research and teaching in mine planning, surface mining systems, AI, data-driven optimization, and digital transformation in mining; contributes to academic leadership, curriculum development, and program administration.
July 2019–June 2025	Associate Professor	University of Alberta	Advanced research in mathematical optimization, simulation, and decision-support systems for mining operations;

			supervised graduate students and contributed to teaching, service, and program development.
April 2013–June 2019	Assistant Professor	University of Alberta	Developed an independent research program in mine planning and mining systems optimization; taught undergraduate and graduate mining engineering courses and established graduate supervision activities.

3. Education

Year	Degree	Institution	Thesis / Dissertation
2013	Ph.D. in Mining Engineering	University of Alberta	Mathematical programming for sequence optimization in block-cave mining
2003	M.Sc. in Mining Engineering	University of Tehran	Theoretical prediction of grout penetration radius and its distribution into jointed rock masses
2001	B.Sc. in Mining Engineering	Sahand University of Technology	—

4. Research Expertise and Scholarly Identity

Theme	Keywords / Methods	Representative Contribution
Mine Planning and Production Scheduling Optimization	Mixed-integer programming, mathematical optimization, long- and short-term mine scheduling, surface and underground mine planning, block-cave sequencing, open-pit planning	Develops optimization-based models and decision-support frameworks for mine design, production scheduling, and operational planning in surface and underground mines. His public research profile identifies surface and underground mine planning and optimization as a central research focus, including long- and short-term scheduling and underground layout optimization.
AI and Data-Driven Optimization in Mining	Artificial intelligence, machine learning, deep learning, data-driven optimization, clustering, reinforcement learning, predictive analytics	Advances in AI-enabled and data-driven approaches for strategic and operational mine planning. His work includes research on AI and data-driven approaches to strategic open-pit mine planning, as well as recent work integrating deep learning, clustering, and optimization for large-scale mine planning and scheduling.
Simulation Optimization and Mining Systems Performance	Discrete-event simulation, simulation optimization, haulage systems, equipment selection, operational uncertainty, energy efficiency	Applies simulation and analytical modelling to improve mining-system performance, including equipment selection, truck-shovel systems, operational uncertainty, energy efficiency, and short-term planning. His University of Alberta profile lists simulation optimization of mining systems and operational energy-efficiency optimization among his ongoing research areas.
Digital Mining, Decision Support, and Industry-Oriented Innovation	Digital transformation, decision-support systems, mine design, industry-focused applied research, Mining and Rock Science Development and Innovation Lab,	Leads research that connects operations research, advanced analytics, and industry-relevant mining challenges. His research activities are conducted through the Mining and Rock Science Development and Innovation Laboratory, and he is also part of the Mining

Mining Optimization Laboratory

Optimization Laboratory industrial research consortium at the University of Alberta.

5. Publications and Scholarly Outputs

Please note *that students are listed as the first authors for publications they co-author, as they lead both the project and writing under my mentorship. Student's contributions focus on analysis and documentation, whereas I contribute to the manuscript's conception, modelling, interpretation, and overall development. The underline indicates the names of undergraduate or graduate student co-authors. For all publications, authorship order is determined by a joint decision of all co-authors. Authors are listed in order of their intellectual contributions for publications co-authored with other researchers.*

5.1 Refereed Journal Articles

J57. F. Nezhadshahmohammad, N. Akbari-Gharalari, and **Y. Pourrahimian**, (2026), "Deep feature learning and structure-aware clustering for scalable optimization in block-cave production scheduling", Applied Soft Computing, Vol. 197, (https://doi.org/10.1016/j.asoc.2026.115170).

J56. M. Shamsi, M. Ataei, M. Nehring, and **Y. Pourrahimian**, (2025), "Optimization of semi-mobile in-pit crushing and conveying production scheduling", Resources Policy, Vol. 110, (https://doi.org/10.1016/j.resourpol.2025.105751)

J55. F. Nezhadshahmohammad, **Y. Pourrahimian**, N. Akbari-Gharalari, (2025), "Innovative evolutions in multicriteria decision making: discovering complex challenges in contemporary decision-making 2021-2023", International Journal of Information Technology & Decision Making, (https://doi.org/10.1142/S0219622026300016).

J54. M. R. Moghaddam, E. Moosavi, A. Bangian, R. Shirinabadi, and **Y. Pourrahimian**, (2025), "Simultaneous optimization of short-term production scheduling with blast block model in open pit mines using a new search algorithm", International Journal of Mining, Reclamation and Environment, (https://doi.org/10.1080/17480930.2025.2559668).

J53. M. Sungwa Dotto and **Y. Pourrahimian**, (2025), "The effect of initiation time delay and sequencing on rock damage in multi-hole blasting", Mining, Vol. 5, No. 22 (https://doi.org/10.3390/mining5020022).

J52. A. Kamrani, **Y. Pourrahimian**, and H. Askari-Nasab, (2025), "Semi-mobile in-pit crushing and conveying vs. truck-shovel systems: long-term scheduling with road and conveyor networks integration", Journal of Expert Systems with Applications, Vol. 268, No. 5, 126122 (https://doi.org/10.1016/j.eswa.2024.126122).

J51. P. Nobahar, **Y. Pourrahimian**, R. Shirani F., and F. Mollaei Koshki, (2025), "Detection of ore type in drilling core using machine learning vision algorithm", Journal of Mining and Environment, Vol. 16, No. 3, pp. 789-809 (https://doi.org/10.22044/jme.2024.14538.2739).

J50. S. Khazaei, A. Mousavi, and Y. Pourrahimian, (2025), "Strategic long-term planning for sublevel caving: a unified mixed-integer-linear programming framework for development, ventilation, production scheduling, and stockpile management", Mining, Metallurgy, and Exploration, Vol. 42, pp. 1741-1757 (https://link.springer.com/article/10.1007/s42461-025-01235-y)

J49. A. Szmigiel, Y. Pu, **Y. Pourrahimian**, H. Dehghanpour, and D. Apel, (2025), "Exploring machine learning techniques for open stope stability prediction: a comparative study and feature importance analysis", Rock Mechanics Bulletin, Vol. 4, No. 3, (https://doi.org/10.1016/j.rockmb.2024.100146).

J48. F. Nezhadshahmohammad, **Y. Pourrahimian**, N. Akbari-Gharalari, (2024), "Synthesizing complexity: trends, challenges, and future directions in fuzzy-based multicriteria decision-making (FMCDM) Methods", Applied Soft Computing Journal, Vol. 167, Part B, 112362 (http://doi.org/10.1016/j.asoc.2024.112362)

J47. A. Kamrani, M.M. Badiozamani, **Y. Pourrahimian**, and H. Askari-Nasab (2024), "Evaluating the semi-mobile in-pit crusher option through a two-step mathematical model", *Resources Policy*, (https://doi.org/10.1016/j.resourpol.2024.105113).

J46. R. Noriega, H. Askari-Nasab, and **Y. Pourrahimian** (2024), "Deep reinforcement learning based real-time open-pit truck dispatching system", *Computers and Operations Research*, (https://doi.org/10.1016/j.cor.2024.106815).

J45. A.Szmigiel, D. Apel, J. Wang, Y. Yuanyuan, L. Wojtecki, **Y. Pourrahimian**, (2024), "Enhancing underground stability prediction in mining engineering: optimal configuration of an artificial neural network model", *Journal of Industrial Safety*, (https://doi.org/10.1016/j.jinse.2024.100008).

J44. M. Sungwa Dotto, and **Y. Pourrahimian** (2024), "The influence of explosive and rock mass properties on blast damage in a single-hole blasting", *Mining* (Women's Special Issue), Vol 4, No. 1, pp. 168-188, (https://doi.org/10.3390/mining4010011).

J43. M. Sungwa Dotto, D. Apel, and **Y. Pourrahimian** (2024), "Investigation of the influence of joint parameters on blast-induced fragmentation", *International Journal of Mining, Reclamation and Environment*, pp. 1-25, (https://doi.org/10.1080/17480930.2024.2347128).

J42. R. Noriega and **Y. Pourrahimian**, (2024), "Shovel allocation and scheduling for open-pit mining using deep reinforcement learning", *International Journal of Mining, Reclamation and Environment*, (https://doi.org/10.1080/17480930.2024.2323325)

J41. E. Andrew, E. Ben-Awuah and **Y. Pourrahimian**, (2023), "Life-of-mine optimization for integrated open stope development and production scheduling using a mixed-integer linear programming framework", *Mining Technology (Trans. Inst. Min. Metall. A)*, (https://doi.org/10.1080/25726668.2023.2182285).

J40. M. Sungwa Dotto, **Y. Pourrahimian**, T. Grain Joseph, D. Apel (2022), "Assessment of blast energy usage and induced rock damage in hard rock open-pit mines", *CIM Journal*, Vol. 13, No. 4, pp. 166-180, (https://doi.org/10.1080/19236026.2022.2126924).

J39. P. Nobahar, **Y. Pourrahimian**, and F. Mollaei Koshki, (2022), "Optimum fleet selection using machine learning algorithms-case study: Zenouz Kaolin Mine", *Mining (MDPI)*, Vol. 2, No. 3, pp. 528-541. (The article belongs to the special issue Mine Automation and New Technologies)

J38. R. Noriega and **Y. Pourrahimian** (2022), "A systematic review of artificial intelligence and data-driven approaches in strategic open-pit mine planning", *Resources Policy*, Vol. 77-102727 (https://doi.org/10.1016/j.resourpol.2022.102727)

J37. M. Shamsi, **Y. Pourrahimian**, and M. Rahmanpour, (2021), "Optimization of open-pit mine production scheduling considering optimum transportation system between truck haulage and semi-mobile in-pit crushing and conveying system", *International Journal of Mining, Reclamation and Environment*, (https://doi.org/10.1080/17480930.2021.1996983).

J36. R. Noriega, **Y. Pourrahimian**, and E. Ben-Awuah (2021), "Optimization of life-of-mine production scheduling for block-caving mines under mineral resource and material mixing uncertainty", *International Journal of Mining, Reclamation and Environment*, (https://doi.org/10.1080/17480930.2021.1976010).

J35. S. Khazaei and **Y. Pourrahimian**, (2021), "Mathematical Programming Application in Sublevel Caving Scheduling", *Mining* (MDPI), Special Issue: *Recent Advances in Underground Mine Planning, Scheduling, and Optimization: Theory and Applications*, Vol. 1, No. 2, pp. 180-191.

J34. H. Xu, D. Apel, J. Wang, C. Wei, and **Y. Pourrahimian**, (2021), "Investigation of backfilling step effects on slope stability", *Mining* (MDPI), Special Issue: *Recent Advances in Underground Mine Planning, Scheduling, and Optimization: Theory and Applications*, Vol. 1, No. 2, pp. 155-166.

J33. D. Liu and **Y. Pourrahimian**, (2021), "A framework for open-pit mine production scheduling under semi-mobile in-pit crushing and conveying systems with the high-angle conveyor", *Mining* (MDPI), Vol. 1, No. 1, pp. 59-79.

J32. Sh. Paravarzar, H. Askari-Nasab, **Y. Pourrahimian**, and X. Emery, (2021), "Simultaneous multi-sector block cave mine production scheduling considering operational uncertainties", *Mining Technology* (TIMM A), © IOM3, Vol. 130, No. 1, pp.36-51. (https://doi.org/10.1080/25726668.2021.1872261).

J31. Sh. Paravarzar, **Y. Pourrahimian**, H. Askari-Nasab, and X. Emery, (2021), "Short-term underground mine planning: A review", *International Journal of Mining and Mineral Engineering* (IJMME), © Inderscience Enterprises Ltd, Geneve, Switzerland, Vol. 12, No. 1, pp. 1-33.

J30. Sh. Paravarzar, H. Askari-Nasab, **Y. Pourrahimian**, and X. Emery, (2021), "Operational mine planning in block cave mining: a simulation-optimization approach", *International Journal of Mining, Reclamation and Environment*, Vol. 35, No. 3, pp. 199-218, (https://doi.org/10.1080/17480930.2020.1804039).

J29. A. Maremi, E. Ben-Awuah, and **Y. Pourrahimian** (2020), "An automated production targeting goal programming framework for oil sands mine planning considering organic-rich solids", *Mining Technology (Trans. Inst. Min. Metall. A)*, Vol. 129, No. 2, pp. 53-67, (https://doi.org/10.1080/25726668.2020.1749431).

J28. R. Noriega, **Y. Pourrahimian**, and E. Ben-Awuah (2020), "A two-step mathematical programming framework for undercut horizon optimization in block caving mines", *Resources Policy*, © Elsevier, Vol. 65, (101586), (https://doi.org/10.1016/j.resourpol.2020.101586).

J27. E. Ugarte Zarate, **Y. Pourrahimian**, and J. Boisvert, (2020), "Optimizing block caving drawpoints over multiple geostatistical models", *International Journal of Mining, Reclamation and Environment*, © Taylor& Francis, Vol. 34, No. 1, pp. 55-74, (https://doi.org/10.1080/17480930.2018.1532866)

J26. V. Nikbin, M. Ataee-pour, K. Shahriar, and **Y. Pourrahimian**, (2020), "A 3D approximate hybrid algorithm for stope boundary optimization", *Computer and Operations Research*, © Elsevier, Vol. 115 (104475), (https://doi.org/10.1016/j.cor.2018.05.012).

J25. N. Seyed Hosseini, E, Ben-Awuah, and **Y. Pourrahimian**, (2020), "A two-step approach to incorporate cut-off grade and stockpiling in oil sands mine planning optimization framework", *Computer and Operations Research*, © Elsevier, Vol. 15 (104659) (https://doi.org/10.1016/j.cor.2019.03.005).

J24. F. Sotoudeh, M. Ataei, R. Kakaie, and **Y. Pourrahimian**, (2019), "Application of sequential Gaussian conditional simulation into underground mine design under grade uncertainty", Journal of Mining and Environment, (https://doi.org/10.22044/jme.2019.7333.1582).

J23. F. Nezhadshahmohammad, M. Saeedi, and **Y. Pourrahimian**, (2019), "Modelling of train-induced vibration in subway interactions", *International Journal of Geotechnical Engineering*, Vol. 15, No. 1, pp. 120-128, (https://doi.org/10.1080/19386362.2019.1681816).

J22. F. Khodayari, **Y. Pourrahimian**, and V. W. Liu, (2019), "Production scheduling with horizontal mixing simulation in block cave mining", Journal of Mining Science, © Springer, Vol. 55, No. 5, pp. 789-803.

J21. Y. Pu, D. Apel, and **Y. Pourrahimian**, (2019), "Evaluation of rockburst potential in Kimberlite using Fruit Fly optimization algorithm and generalized regression neural networks", *Archives of Mining Sciences*, Vol. 64, No. 2, pp. 279-296.

J20. A. Azadmehr, E. Jalali, and **Y. Pourrahimian**, (2019), "Development of a rock mass fragmentation index, using a hybrid method of rock engineering system", *Rock Mechanics and Rock Engineering* (RMRE), © Springer, Vol. 52, No. 11, pp. 4403-4419.

J19. F. Khodayari and **Y. Pourrahimian**, (2019), "Long-term production scheduling optimization and 3-D material mixing analysis for block caving mines", *Mining Technology* (TIMM A), © IOM3, Vol. 128, No. 2, pp. 65-76.

J18. F. Nezhadshahmohammad, H. Aghababaei, and **Y. Pourrahimian**, (2019), "Conditional Draw rate control system in block-cave production scheduling using mathematical programming", *International Journal of Mining, Reclamation and Environment*, Vol. 33, No. 4, pp. 223-246.

J17. V. Nikbin, M. Ataee-pour, K. Shahriar, **Y. Pourrahimian**, and S. A. MirHassani, (2019), "Stope boundary optimization: A mathematical model and efficient heuristics", *Resources Policy*, © Elsevier, Vol. 62, pp. 515-526, (https://doi.org/10.1016/j.resourpol.2018.10.007)

J16. F. Nezhadshahmohammad and **Y. Pourrahimian**, (2018), "A clustering algorithm for block-cave production scheduling", *Global Journal of Earth Science and Engineering*, © Avanti Publisher, Vol. 5, pp. 45-53.

J15. F. Nezhadshahmohammad, **Y. Pourrahimian**, and H. Aghababaei, (2018), "Presentation and application of a multi-index clustering technique for the mathematical programming of block-cave production scheduling", *International Journal of Mining Science and Technology*, © Elsevier, Vol. 28, pp. 941-950.

J14. F. Nezhadshahmohammad, H. Aghababaei, and **Y. Pourrahimian**, (2018), "Draw rate management system using mathematical programming in extraction sequence optimisation of block cave mining", *International Journal of Mining and Mineral Engineering* (IJMME), © Inderscience Enterprises Ltd, Geneva, Vol. 9, No. 1, pp. 32-53.

J13. H. Yu, L. Wu, W. V. Liu, and **Y. Pourrahimian**, (2018), "Effects of fibres on expansive shotcrete mixtures consisting of calcium sulfoaluminate cement, ordinary Portland cement, and calcium sulfate", *Journal of Rock Mechanics and Geotechnical Engineering*, © Elsevier, Vol. 10, No. 2, pp. 2121-221.

J12. D. Omane, W. V. Liu, and **Y. Pourrahimian**, (2018), "Comparison of chemical suppressants under different atmospheric temperatures for the control of fugitive dust emission on mine haul roads", *International Journal of Mining Science and Technology*, © Elsevier, Vol. 9, No. 3, pp. 561-568.

J11. A. Yaghini, **Y. Pourrahimian**, and R. A. Hall, (2018), "Human factor and human error in mining industry; a review and lessons from other industries", *CIM Journal (Canadian Institute of Mining, Metallurgy and Petroleum)*, Vol. 9, No. 1, pp. 5-20.

J10. F. Khodayari and **Y. Pourrahimian**, (2017), "Production scheduling in block caving with consideration of material flow", *Aspects in Mining and Mineral Science* (AMMS), © Crimson Publishers, (Open access).

J9. E. Ben-Awuah, O. Richter, T. Elkington, and **Y. Pourrahimian**, (2016), "Strategic mining options optimization: open pit mining, underground mining or both", *International Journal of Mining Science and Technology*, © Elsevier, Vol. 26, No. 6, pp. 1065-1071.

J8. F. Khodayari and **Y. Pourrahimian**, (2015), "Mathematical programming applications in block-caving scheduling: a review of models and algorithms", *International Journal of Mining and Mineral Engineering* (IJMME), © Inderscience Enterprises Ltd, Geneve, Vol. 6, No. 3, pp. 234-257.

J7. **Y. Pourrahimian** and H. Askari-Nasab, (2014), "An application of mathematical programming to determine the best height of draw in block-cave sequence optimization", *Mining Technology (Trans. Inst. Min. Metall. A)*, © Maney, Vol. 123, No. 3, pp. 162-172.

J6. **Y. Pourrahimian**, H. Askari-Nasab, and D. Tannant, (2013), "A multi-step approach for block cave production scheduling optimization", *International Journal of Mining Science and Technology*, © Elsevier, Vol. 23, No. 5, pp. 739-750.

J5. **Y. Pourrahimian**, H. Askari-Nasab, and D. Tannant, (2012), "Mixed-integer linear programming formulation for block cave sequence optimization", *International Journal of Mining and Mineral Engineering* (IJMME), © Inderscience Enterprises Ltd, Geneve, Switzerland, Vol. 4, No. 1, pp. 26-49.

J4. H. Askari-Nasab, **Y. Pourrahimian**, E. Benn-Awuah, and S. Kalantari, (2011), "Mixed-integer linear programming

formulations for open pit production scheduling", *Journal of Mining Science*, Vol. 47, No. 3, pp. 338-359.

J3. E. Ben-Awuah, S. Kalantari, **Y. Pourrahimian**, and H. Askari-Nasab, (2010), "Hierarchical mine production scheduling using discrete-event simulation", *International Journal of Mining and Mineral Engineering* (IJMME), © Inderscience Enterprises Ltd, Geneve, Switzerland, Vol. 2, No. 2, pp.137-158.

J2. S. Gheibie, S. H. Hoseinie, H. Aghababaei, **Y. Pourrahimian**, (2009), "Modified Kuz-ram fragmentation model and its use at the Sungun copper mine", *International Journal of Rock Mechanics and Mining Science*. Vol. 46, Issue 6, pp.967-973.

J1. S. H. Hoseinie, H. Aghababaei, **Y. Pourrahimian**, (2008), "Development of a new classification system for assessing the Rock mass Drillability index (RDi)", *International Journal of Rock Mechanics and Mining Science*, Vol. 45, Issue 1, pp.1-10.

5.2 Refereed Conference Papers

Please note *that the underline indicates the name(s) of the presenter, and an asterisk indicates the names of undergraduate or graduate students as co-authors.*

C41. S. Khazaei*, A. Mousavi, and **Y. Pourrahimian**, (2023), "An integrated approach for long-term production scheduling optimization of sublevel caving mines using mixed-integer-linear-programming model", *APCOM 2023, Intelligent Mining: Innovation, Vision, and Value*, Rapid City, SD, USA, June 25-28.

C40. R. Noriega* and **Y. Pourrahimian**,(2023), "Truck fleet dispatching control in open-pit Mining based on reinforcement learning and discrete event simulation", *APCOM 2023, Intelligent Mining: Innovation, Vision, and Value*, Rapid City, SD, USA, June 25-28.

C39. A.Kamrani*, H. Askari-Nasab, and **Y. Pourrahimian**, (2023), "A two-step model to optimize the semi-mobile in-pit crusher locations and the mine schedule", *APCOM 2023, Intelligent Mining: Innovation, Vision, and Value*, Rapid City, SD, USA, June 25-28.

C38. M. S. Dotto* and **Y. Pourrahimian**, (2023), "The effect of rock mass properties on explosive energy in rock blasting", *APCOM 2023, Intelligent Mining: Innovation, Vision, and Value*, Rapid City, SD, USA, June 25-28.

C37. M. Al-Masri* , **Y. Pourrahimian**, and A. Yaghini, (2022), "Simulation and analysis of loading practices for trucks and shovels under production variability", *CIM Convention 2022, CIM (Canadian Institute of Mining, Metallurgy and Petroleum)*, May 1-3, Vancouver, BC, Canada.

C36. R. Noriega* and **Y. Pourrahimian**, (2020), "Definition of an envelope and life-of-mine production schedule for block caving mines under grade and material flow uncertainty", *MassMin 2020,* Santiago, Chile, Dec 9-11.

C35. Sh. Paravarzar*, H. Askari-Nasab, **Y. Pourrahimian**, and X. Emery, (2020), "Investigation of the effects of the operational parameters on the daily production schedule in panel caving using mathematical programming", *MassMin 2020,* Santiago, Chile, Dec 9-11.

C34. R. Noriega*, Sh. Paravarz, **Y. Pourrahimian**, and W.V. Liu, (2019), "A new method to select the optimum undercut elevation in block caving mines", *2019 SME Annual Conference and Expo,* Feb 24-27, Denver, Colorado, United States.

C33. R. Noriega*, **Y. Pourrahimian**, and W.V. Liu, (2018), "Determination of undercut horizon in block caving mines using mathematical programming", *4th International Symposium on Block and Sublevel Caving* (Caving 2018), Vancouver, Canada, Oct 15-17, pp. 363-372.

C32. F. Khodayari*, **Y. Pourrahimian**, and E. Ben-Awuah, (2018), "Application of mathematical modelling for draw control under material flow uncertainty ", *4th International Symposium on Block and Sublevel Caving* (Caving 2018), Vancouver, Canada, Oct 15-17, pp. 815-822.

C31. Y. Guo*, J. Komar, W. V. Liu, M. Sepehri, and Y. Pourrahimian, (2018), "Considering groundwater advection on the design of borehole heat exchanger – a review of analytical solutions", *Geo Edmonton 2018*, 71st Canadian Geotechnical Conference and the 13th Joint CGS/IAH-CNC Groundwater Conference, Edmonton, Canada, Sep 23-26.

C30. H. Yu*, L. Wu, W. V. Liu, and **Y. Pourrahimian**, (2018), "Effect of fibers on expansive shotcrete mixtures containing calcium sulfoaluminate", *CIM Convention 2018, CIM (Canadian Institute of Mining, Metallurgy and Petroleum)*, May 6-9, Vancouver, BC, Canada, (Paper 1931).

C29. D. Omane*, W. V. Liu, and **Y. Pourrahimian**, (2018), "A ranking of dust suppressants under different atmospheric temperatures to control fugitive dust generated from mines haul roads", *2018 SME Annual Conference and Expo,* Feb 25-28, Minneapolis, Minnesota, United States.

C28. F. Nezhadshahmohammad*, F. Khodayari*, and **Y. Pourrahimian**, (2017), "Draw rate optimization in block cave production scheduling using mathematical programming", *1st International Conference on Underground Mining Technology (UMT 2017)*, October 11-13, Sudbury, Canada, pp. 309-321.

C27. S. Malaki*, F. Khodayari*, **Y. Pourrahimian**, and W. V. Liu, (2017), "An application of mathematical programming and sequential Gaussian simulation for block-cave production scheduling", *1st International Conference on Underground*

Mining Technology (UMT 2017), October 11-13, Sudbury, Canada, pp. 323-337.

C26. E. Ugarte-Zarate*, **Y. Pourrahimian**, J. Boisvert, (2017), "Determination of optimum drawpoint layout in block caving using sequential Gaussian simulation", *1st International Conference on Underground Mining Technology (UMT 2017)*, October 11-13, Sudbury, Canada, pp. 339-349.

C25. D. Omane*, W. V. Liu, and **Y. Pourrahimian**, (2017), "Evaluating dust suppressants on mine haul roads", *2017 Alberta NWT/Nunavut Regional Canadian Mineral Processors Conference (CMP 2017),* Oct 25, Fort McMurray, Alberta, Canada.

C24. A. Yaghini*, **Y. Pourrahimian**, and R. A. Hall, (2017), "The human factor analysis and classification system (HFACS); a review and lessons from other industries", *MEMO 2017, CIM (Canadian Institute of Mining, Metallurgy and Petroleum)*, September 24-27, Saskatoon, Saskatchewan, Canada, (Paper 1868).

C23. F. Nezhadshahmohammad*, **Y. Pourrahimian**, and H. Aghababaei, (2017), "Presentation of draw control criteria in block caving and improvement of production planning", *CIM 2017 Convention,* April 30- May 3, Montreal, Canada, (Paper 1516).

C22. H. Yu*, L. Wu, W. V. Liu, and **Y. Pourrahimian**, (2017), "Developing shrinkage-compensating shotcrete mixtures from calcium sulfoaluminate, portland cement, and calcium sulfate", CIM *2017 Convention,* April 30- May 3, Montreal, Canada, (Paper 1453).

C21. D. Omane, H. Yu*, W. V. Liu, and **Y. Pourrahimian**, (2017), "Investigation on the use of chemical dust suppressants on ash emission due to Fort MacMurray wildfire", *2017 SME Annual Conference and Expo,* Feb 19-22, Denver, Colorado, United States.

C20. F. Khodayari* and **Y. Pourrahimian**, (2016), "Quadratic programming application in block-cave mining", *1st international conference of Underground Mining,* Oct 19-21, Santiago, Chile, pp. 427-438.

C19. F. Khodayari* and **Y. Pourrahimian**, (2015), "Determination of development precedence for drawpoints in block-cave mining", *5th International Symposium on Mineral Resources and Mine Development*, Aachen, Germany, May 27-28, pp. 383-391.

C18. F. Khodayari* and **Y. Pourrahimian**, (2014), "Determination of the best height of draw in block-cave sequence optimization", *3rd International Symposium on Block and Sublevel caving (CAVING 2014)*, Santiago, Chile, June 5-6, pp. 457-467.

C17. **Y. Pourrahimian** and H. Askari-Nasab, (2012), "An application of mixed-integer linear programming for block-cave production scheduling", *5th International Conference on Innovation in Mine Operations (MININ 2012)*, Santiago, Chile, June 20-22, pp. 594-614.

C16. **Y. Pourrahimian**, H. Askari-Nasab, and D. Tannant, (2012), "Block cave production scheduling optimization using mathematical programming", *6th International Conference & Exhibition on Mass Mining*, Sudbury, Canada, June 11-13.

C15. **Y. Pourrahimian**, H. Askari-Nasab and, D. Tannant, (2009), "Production scheduling with minimum mining width constraints using mathematical programming", *Proceedings of the 18th International Symposium on Mine Planning and Equipment Selection* (MPES 2009), Banff, Alberta, Canada. pp. 646 -653.

C14. E. Ben-Awuah, S. Kalantari, **Y. Pourrahimian** and H.Askari-Nasab, (2009), "Simulating the production of a multi-element ore-body with an alternating crushing schedule", *Proceedings of the 18th International Symposium on Mine Planning and Equipment Selection* (MPES 2009), Banff-Alberta, Canada. pp. 150 -162.

C13. A. Majdi, **Y. Pourrahimian**, B.Kushavand, (2007),"A geostatistical approach to estimate the permeability and groundwater path in rocks", 20th International Mining Congress and Exhibition of Turkey, Ankara, Turkey, (IMCET2007), pp.137 – 142.

C12. S. H. Hoseinie*, H. Aghababaei and **Y. Pourrahimian**, (2006), "Analyzing and physical modelling of joints dipping effects on penetration rate of rotary drilling in open pit mines", *Proceedings of the 15th International Symposium on Mine Planning and Equipment Selection* (MPES 2006), Torino-Italy. Vol. 2. pp. 1007-1012.

C11. S. H. Hoseinie*, **Y. Pourrahimian** and H. Aghababaei, (2006), "Application of Rock Mass index (RMi) to determine the Blasting Index(BI) - A case study Sungun copper mine, Iran", *Proceedings of the 15th International Symposium on Mine Planning and Equipment Selection,* (MPES 2006), Torino-Italy. Vol. 2. pp. 1013-1018.

C10. S. Gheibie* , H. Aghababaei, S. H. Hoseinie*, and **Y. Pourrahimian**, (2009), "Kuznetsov model's efficiency in estimation of mean fragment size at the Sungun copper mine", *9th Int. Conf. on Rock Fragmentation by Blasting* (Fragblast-9), Granada, Spain, pp. 265-269.

C9. B. Nikbakhtan*, **Y. Pourrahimian**, H. Aghababaei, (2007), "Effects of Jet grouting on excavated slopes in Shahriar dam's foundation, Iran", GEO-CHANGSHA 2007, *International Conference on Geotechnical Engineering*, Changsha, China, pp. 495 –502.

C8. H. O. Ghaffari*, M. Rahimi Dizaji*, and **Y. Pourrahimian**, (2007), "Analysis of permeability using soft computing approaches", *2nd International Conference on Porous Media and Its Application in Science and Engineering (ICPM2)*,

Hawaii, USA.

C7. S. H. Hoseinie*, M.Ataie, H. Aghababaei and **Y. Pourrahimian**, (2007), "RDi-A new method for evaluating of rock mass drillability", *Proceedings of the 1st CANADA-US Rock Mechanics Symposium*, Vancouver, Canada, pp. 207-213.

C6. S. H. Hoseinie*, **Y. Pourrahimian**, and H. Aghababaei, (2007), "Physical modeling of joints spacing effects on penetration rate of rotary drilling in open pit mines", *20th International Mining Congress and Exhibition of Turkey*, Ankara, Turkey, (IMCET 2007), pp. 259 – 263.

C5. B. Nikbakhtan*, **Y. Pourrahimian**, H. Aghababaei, (2007), "Investigation of Jet grouting effect on slope stability: A case study at the Shahriar dam, Iran", *20th International Mining Congress and Exhibition of Turkey*, Ankara, Turkey, (IMCET 2007), pp. 229 – 237.

C4. S. H. Hoseinie*, **Y. Pourrahimian**, N. Fardin and H. Aghababaei, (2006), "Determination of blasting index (BI) to predict the fragmentation amount and blasting efficiency of Sungun copper mine using Rock Mass index (RMi)", *8th Int. Conf. on Rock Fragmentation by Blasting* (Fragblast-8), Santiago, Chile, pp. 321-325.

C3. H. O. Ghaffari*, **Y. Pourrahimian** and A. Majdi, (2006), "Application of ANNs to permeability analysis Shivashan Dam, Iran", *Asian Rock Mechanics Symposium* (ARMS-2006), Singapore.

C2. A. Majdi, **Y. Pourrahimian**, H. Bagheri, (2005), "A study of groutability of Shivashan Dam Foundation And The Corresponding Abutments", *6th International Conference on GROUND IMPROVEMENT TECHNIQUES*, Portugal. pp. 415-421.

C1. A. Majdi, **Y. Pourrahimian** and H. Bagheri, (2004), "Theoretical Prediction of Grout Intake In Jointed Rock Masses", *5th International Conference on GROUND IMPROVEMENT TECHNIQUES*, Kuala Lumpur, Malaysia, pp. 237-244.

5.3 Technical Reports / Industry Reports

My research is conducted through my research labs, the Mining and Rock Science Development and Innovation lab (MRDIL) and the Mining Optimization lab (MOL). As an MOL member, we provide an annual report with 10–20 papers. I am responsible for report preparation; at least four papers in each report are from my research team at MRDIL.

R8. Badiozamani, MM., **Pourrahimian, Y.**, Ben-Awuah, E., Maradi Afrapoli, A., and Askari-Nasab, H., (2025), Mining Optimization Laboratory (MOL) - Report Thirteen, © MOL, University of Alberta, Edmonton, Canada, 24 papers, 625 Pages, ISBN: 978-1-55195-548-3.

R7. Badiozamani, MM., **Pourrahimian, Y.**, Ben-Awuah, E., Maradi Afrapoli, A., and Askari-Nasab, H., (2024), Mining Optimization Laboratory (MOL) - Report Twelve, © MOL, University of Alberta, Edmonton, Canada, 23 papers, 496 Pages, (https://doi.org/10.13140/RG.2.2.21281.52320).

R6. Badiozamani, MM., **Pourrahimian, Y.**, Ben-Awuah, E., Maradi Afrapoli, A., and Askari-Nasab, H., (2023), Mining Optimization Laboratory (MOL) - Report Eleven, © MOL, University of Alberta, Edmonton, Canada, 18 papers, 365 Pages, (https://doi.org/10.7939/84201).

R5. Badiozamani, MM., **Pourrahimian, Y.**, Ben-Awuah, E., Maradi Afrapoli, A., and Askari-Nasab, H., (2022), Mining Optimization Laboratory (MOL) - Report Ten, © MOL, University of Alberta, Edmonton, Canada, 20 papers, 425 Pages, (https://doi.org/10.7939/84200).

R4. **Y. Pourrahimian**, E. Ben-Awuah and H. Askari-Nasab, (2018), Mining Optimization Laboratory (MOL) - Report Nine, © MOL, University of Alberta, Edmonton, Canada, 20 papers, 378 Pages, (https://doi.org/10.7939/84199).

R3. **Y. Pourrahimian**, E. Ben-Awuah and H. Askari-Nasab, (2017), Mining Optimization Laboratory (MOL) - Report Eight, © MOL, University of Alberta, Edmonton, Canada, 19 papers, 306 Pages, (https://doi.org/10.7939/84198).

R2. **Y. Pourrahimian**, E. Ben-Awuah and H. Askari-Nasab, (2016), Mining Optimization Laboratory (MOL) - Report Seven, © MOL, University of Alberta, Edmonton, Canada, 13 papers, 240 Pages, (https://doi.org/10.7939/84197).

R1. **Y. Pourrahimian**, E. Ben-Awuah and H. Askari-Nasab, (2015), Mining Optimization Laboratory (MOL) - Report Six, © MOL, University of Alberta, Edmonton, Canada, 14 papers, 250 Pages, (https://doi.org/10.7939/84196).

5.4 Submitted or Under-Review Manuscripts

S2. S. Khazaei, R. Noriega, I. Perederiy, H. Askari-Nasab, and **Y. Pourrahimian**, (2026), "Stockpile Reclamation and Grade Blending for Processing Plant Feed: A Systematic Review of Methods, Models, and Research Gaps", Mining,(Under review)

S1. S. Khazaei and **Y. Pourrahimian**, (2025), "Tractable MILP Solutions for Large-Scale Sublevel Caving Scheduling Through Computationally Efficient Big Block Decomposition Strategy", Resources Policy,(Under Review).

6. Research Impact and Metrics

Metric / Indicator	Current Value	Notes
Google Scholar citations	2011	As of June, 2026
h-index / i10-index	23 / 46	Source: Google Scholar

7. Graduate Student and Postdoctoral Supervision

7.1 Completed Graduate Supervision

Student	Degree	Role	Thesis Title	Year	Current Position
Soroush Khazaei	Ph.D.	Supervisor	Long-term production scheduling optimization for sublevel caving mines using mixed-integer linear programming (MILP)	2025	Postdoctoral Fellow at U of A
Magreth Dotto	Ph.D.	Supervisor	Assessment of blast energy usage and the extent of blast damage in hard rock open-pit mines	2024	Assistant Professor, University of Dar es Salaam
Alireza Kamrani	Ph.D.	Co-Supervisor	Optimization of long-term open-pit mine planning incorporating in-pit crushing and conveying	2024	Postdoctoral Fellow at U of A
Roberto Noriega	Ph.D.	Supervisor	Data-driven and artificial intelligence approach to dynamic truck fleet dispatching and shovel allocation planning in open-pit mines	2023	Senior Product Manager, NTWIST
Firouz Khodayari	Ph.D.	Supervisor	Incorporating 3D mixing in long-term production scheduling optimization for block caving mines	2018	Mining Engineer Manager, Mariana Minerals
Yaa Serwaa Kariakari	M.Sc.	Co-Supervisor	A valid simulation framework for fuel and operational performance analysis in truck-shovel mining systems	2026	--
Emmanuel Donea	M.Sc.	Supervisor	Intersection rules' impact on haul truck productivity in mining operations: an analysis using Haulsim	2025	Mining Engineer, Imperial
Moamad Al-Masri	M.Sc.	Supervisor	An approach for evaluating the full truck and full bucket loading strategies in open-pit mining using a discrete event simulation and machine learning	2022	PhD student at U of A
Dismas Kalitenge	M.Sc.	Supervisor	Cut-off grade optimization in open-pit mines considering two processing streams and rehabilitation cost	2021	Tutorial Assistant at the University of Dar es Salaam
Dingbang Liu	M.Sc.	Supervisor	Open-pit mine production scheduling and crusher location -relocation plan under semi-mobile IPCC systems	2020	Project Coordinator Contract, Flexible Machines

					Corporation
Roberto Noriega	M.Sc.	Supervisor	Production scheduling and boundary optimization in block caving mines under geologic and material flow uncertainty	2019	Senior Product Manager, NTWIST
Tara Basiri	M.Sc.	Supervisor	Stope layout and production scheduling optimization in sublevel stoping mining	2018	Program Manager, Passage
Efrain Ugarte-Zarate	M.Sc.	Co-Supervisor	Block caving production layout optimization considering uncertainty in grade models	2018	Principal Geologist, Vale Base Metal
David Omane	M.Sc.	Supervisor	Comparison of chemical suppressants under different atmospheric temperatures for the control of fugitive dust emission on mine haul roads	2017	Mining Engineer
Saha Malaki	M.Sc.	Supervisor	Block cave extraction level and production scheduling optimization under grade uncertainty	2016	Postdoctoral Fellow, Western University
Kwabena Kesse-Kumi	M.Eng.	Supervisor	Review of blasting vibration in surface mining	2026	---
Yvonne Princella Osafo	M.Eng.	Supervisor	The evolution of mine surveying: from traditional methods to digital technologies	2026	Mining Engineer, Stantec
Lonard Appianin	M.Eng.	Supervisor	Current carbon reduction strategies in mining and the way forward	2026	---
Anthony Adabre	M.Eng.	Supervisor	A holistic, data-driven framework for Accelerating underground hard rock development: quantifying operational efficiency metrics to improve advance rate	2025	Mining Engineer, Golden Star Resources Ltd, Ghana
Jevendiran Ramadasu	M.Eng.	Supervisor	Pit optimization through integration of carbon costs - case study	2025	Mining Engineer, Suncor
Ishee Gursuren	M.Eng.	Supervisor	Trade-off analysis of strategic mining options for Lawyers Gold-Silver Project, Stikine terrane, BC: the potential inclusion of underground development	2023	Resource Geologist, APEX Geoscience Ltd
Agar Bulgan	M.Eng.	Supervisor	Dragline operating time and operating cost analysis in Shivee-Ovoo coal mine	2022	Geologist, Teck Resources Limited
Ange Bu	M.Eng.	Supervisor	Mining automation: a review of its current application and future developments	2021	Mining Engineer, Conuma Resources
Myagmarjav Batsukh	M.Eng.	Supervisor	Technology selection for unconventional petroleum resources	2017	Senior Mining Specialist, Erdenes Oyu Tolgoi LLC

7.2 Current Graduate Supervision

Student	Degree	Role	Research Topic	Start Year
Khaleeq Ahmed	Ph.D.	Supervisor	Artificial intelligence approach to dynamic truck fleet dispatching	2023
Mohammad Al-Masri	Ph.D.	Supervisor	Performance simulation of autonomous trucks in mine sites	2024
Cristina Miranda Bermudez	M.Sc.	Supervisor	Decarbonization open-pit mining haulage: simulation-based evaluation of diesel, trolley-assist, and battery-electric systems	2024

7.3 Postdoctoral Fellows / Research Associates

Name	Position	Period	Research Area / Contribution
Soroush Khazaei	Postdoctoral Fellow	2026-present	Transformative Digital Framework for Risk-Aware, AI-Enabled Optimization in Geometallurgical Mine Planning and Processing
Roberto Noriega	Postdoctoral Fellow	2023-2024	Application of reinforcement learning for stope boundary optimization
MohammadReza Moghaddam	Visiting Researcher	2021-2023	Optimization of short-term production scheduling with blast block model
Shahrokh Paravarzar	Visiting Researcher	2018-2020	Short-term production scheduling of block cave mines
Vahid Nikbin	Visiting Researcher	2017-2018	Stope boundary optimization
Saleh Balideh	Research Associate	2017-2018	Developing an Approach to Generate a Watertight Mesh Adaptive with Cavity Monitoring System (CMS)
Farshad Nezadshahmohammad	Visiting Researcher	2016-2017	Bock cave production scheduling and optimization
Amir Azadmehr	Visiting Researcher	2015-2016	Rock mass fragmentation index
Saleh Balideh	Postdoctoral Fellow	2016-2017	Influence of particle shape and texture on broken sandstone strength behaviour

7.4 Thesis Examination and Candidacy Committees

Dr. Pourrahimian has contributed extensively to graduate education through participation in PhD defence and PhD candidacy committees, and in MSc defence committees, at the University of Alberta, including within the Department of Civil and Environmental Engineering and the School of Mining and Petroleum Engineering, as well as in other departments in the Faculty of Engineering.

Year	PhD Defence	PhD Candidacy	MSc Defence	Total / Year
2013	2	5	0	7
2014	3	4	4	11
2015	4	3	0	7

2016	4	2	4	10
2017	2	3	4	9
2018	4	2	5	11
2019	5	3	6	14
2020	2	2	0	4
2021	2	4	3	9
2022	2	6	4	12
2023	1	3	4	8
2024	0	1	0	1
2025	2	2	8	12
2026	0	2	3	5
Total	**33**	**42**	**45**	**120**

8. Teaching Portfolio

8.1 Courses Taught

Course Code	Course Title	Level	Institution	Years
MIN E 413	Surface Mining Methods and Operations Management	Undergraduate	University of Alberta	2013-2024
MIN E 402	Mine Design Project I (capstone)	Undergraduate	University of Alberta	2014-2016
MIN E 403	Mine Design Project II (capstone)	Undergraduate	University of Alberta	2015-2023
MIN E 325	Mine Planning and Design	Undergraduate	University of Alberta	2013
MIN E 407	Principles of Mine Ventilation	Undergraduate	University of Alberta	2014
MIN E 610	Principles of Mining Engineering	Graduate	University of Alberta	2015-2024

9. Academic Leadership and Administrative Roles

Period	Role	Unit / Institution	Major Contributions
2025–Present	Associate Dean, Undergraduate Studies	Department of Civil and Environmental Engineering and School of Mining and Petroleum Engineering (CEEMP)/ University of Alberta	Leads undergraduate academic planning and program renewal across Civil, Environmental, Mining, and Petroleum Engineering. Chairs the Academic Planning Committee and coordinates department-wide curriculum modernization, program-level planning, course-delivery discussions, accreditation preparation, and policy development related to undergraduate education. Works with faculty members, program representatives, and departmental leadership to evaluate curriculum structure, address program

			needs, improve student progression, and ensure that undergraduate programs remain academically rigorous, sustainable, industry-relevant, and aligned with institutional and accreditation expectations.
2024-2025	Master of Engineering (M.Eng.) Faculty Advisor	Department of Civil and Environmental Engineering and the School of Mining and Petroleum Engineering (CEEMP)/ University of Alberta	Led academic advising, program coordination, and administrative support for one of the Faculty of Engineering's largest M.Eng. programs, with more than 150 incoming students annually across over nine specializations. Developed academic and marketing plans, reviewed and processed applications, advised students on program requirements and university policies, supported course-selection decisions, and facilitated communication between students, faculty members, and the graduate office. Contributed to Graduate Program Review and Unit Review activities and supported annual revisions to the M.Eng. section of the Department Graduate Studies Handbook.

10. Service Contributions

10.1 Departmental, Faculty, and University Service

Period	Committee / Role	Level	Contribution
2022–2023	Engineering Certificate Program Advisory Committee	Faculty	Supported faculty-level certificate program planning, academic structure discussions, and alignment with educational priorities.
2020–2023	Engineering Undergraduate Students/Staff Committee	Faculty	Contributed to discussions on undergraduate student experience, academic support, and student–staff engagement.
2017–2020	Faculty of Engineering Graduate Attribute Review Committee	Faculty	Supported graduate-attribute review, accreditation-related assessment, and continuous program improvement.
2020–Present	Mining Group Graduate Coordinator	Department / Mining Group	Coordinates graduate-program matters, student advising, faculty communication, and graduate-student progression within Mining Engineering.
2018–2024	Organizer and Coordinator, Mining Industry Night	Department / Mining Group	Led organization of an annual industry-engagement event connecting students, alumni, faculty, and industry partners.
2016–2019	Mining Group Undergraduate Advisor	Department / Mining Group	Advised undergraduate students on program requirements, course selection, academic planning, and progression.
2014–Present	Faculty Supervisor, Mining Games	Department / Mining	Supervised and supported the student

	Team	Group	team, including account management, logistics, and competition preparation; the team ranked **1st in Canada** in 2018, 2019, and 2020.
2013–Present	Mining Industry Advisory Committee	Department / Mining Group	Supported industry engagement, curriculum relevance, student opportunities, and program visibility; member of Marketing Subcommittee from 2018 to 2024.
2013–Present	Department Open House	Department	Supported recruitment, outreach, and promotion of Mining Engineering programs to prospective students and visitors.

10.2 Service to the Profession

Year	Activity	Organization / Journal / Conference	Role
2024-2026	Underground Mining Methods and Design Exam, 18-MMP-A2	Professional Engineers Ontario	Exam designer and marker
2024-2026	Surface Mining Methods and Design Exam, 18-MMP-A5	Professional Engineers Ontario	Exam designer and marker
2023	Surface Mining Methods and Design Exam, 18-MMP-A5	Professional Engineers Ontario	Exam marker
2023-2024	*Special Issue:* Recent Advances in Underground Mine Planning, Scheduling, and Optimization	Mining, MDPI	Guest editor
2023	8th International Conference on Geology and Mining Planning, GEOMIN-MINEPLANNING 2023	Santiago, Chile	Executive committee member
2022–2023	*Special Issue:* Modelling and Optimization for Sustainable Resources Development	*Sustainability*, MDPI	Guest editor
2022	Mining Engineering Accreditation Visit	British Columbia Institute of Technology	Mining program visitor
2022	Underground Mining Methods and Design Exam, 18-MMP-A2	Professional Engineers Ontario	Exam designer and marker
2022	Student Poster Session, CIM 2022	Canadian Institute of Mining, Metallurgy and Petroleum	Invited judge
2020–Present	Editorial Board	Mining, MDPI	Editorial board member
2020–Present	Editorial Board	Journal of Mining and Environment	Editorial board member
2018–	Board of Examiners, Mining	Association of Professional Engineers and	Academic record reviewer

Present	Applications	Geoscientists of Alberta	
2018	Student Poster Session, CIM 2018	Canadian Institute of Mining, Metallurgy and Petroleum	Invited judge
2017–Present	Editorial Board	Aspects in Mining & Mineral Science, *Crimson Publishers*	Associate editor
2017-2019	Editorial Board	Global Journal of Earth Science and Engineering, *Avanti Publishers*	Associate editor

10.3 Peer Review and Grant Review Service

Year	Activity	Organization / Journal / Conference	Role
Ongoing	Peer review for funding agencies, journals, and professional organizations	NSERC; Mitacs; National Research and Development Agency, Chile; *International Journal of Mining, Reclamation and Environment*; *Resources Policy*; *Mining*; *Mining Technology: Transactions of the Institutions of Mining and Metallurgy, Section A*; *International Journal of Mining and Mineral Engineering*; *Mining, Metallurgy & Exploration*; *Journal of Mining and Environment*; and other journals and organizations	Peer reviewer/grant reviewer

10.4 External Thesis Examination and Professional Assessment

Since 2018, Dr. Pourrahimian has served as an external examiner for eight PhD defences and one MSc defence at leading national and international institutions, including the Indian Institute of Technology, University of British Columbia, and McGill University.

11. Awards, Honours, and Distinctions

Year	Award / Honour	Organization	Basis / Description
2017, 2018, 2019	Early Career Researcher Award	Department of Civil and Environmental Engineering and the School of Mining and Petroleum Engineering (CEEMP)	Awarded in three consecutive years in recognition of research productivity, scholarly contributions, and emerging research leadership.

12. Invited Talks, Keynotes, and Presentations

Year	Title	Event / Host	Location
2024	Deep Mining with Special Focus on Caving Methods: Challenges and Solutions	Invited presentation at the 2nd Comprehensive Event of Mines and Mining Industries	Online / Iran
2023	IPCC Technology in Open-Pit Mines	Three-hour online technical course delivered to mining professionals as part of GEOMIN-MINEPLANNING 2023; course materials were developed based on the presenter's research on IPCC systems	Online / Chile

2017	Mining Fundamentals	*Two-day invited workshop delivered to four Mongolian government representatives under the* Strengthening Extractive Sector Management in Mongolia *project, led by Agriteam Canada and funded by Global Affairs Canada*.	University of Alberta International Office, Edmonton, Canada

13. Professional Registration and Memberships

Organization / Registration	Status	Period
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)	Registered / P.Eng.	2016–Present
Canadian Institute of Mining, Metallurgy & Petroleum	Member	2013–Present