

Elmira Kalhor

Ph.D. Candidate, Economics

Ph.D. Civil Engineering

Curriculum Vitae

CONTACT INFORMATION

Address 316 Princeton Dr SE APT 6, Albuquerque, NM 87106

Phone (505) 717-5568

E-mail ekalhor@unm.edu

EDUCATION

Ph.D. Candidate, Economics, University of New Mexico, Albuquerque, NM Aug 2016-May 2019

M.A., Economics, University of New Mexico, Albuquerque, NM Aug 2016-Dec 2017

Ph.D., Engineering, University of New Mexico, Albuquerque, NM Aug 2012-May 2017

M.Sc., Civil Engineering, Iran University of Science & Technology, Tehran, Iran Sep 2007-Jul 2010

B.Sc., Civil Engineering, Iran University of Science & Technology, Tehran, Iran Sep 2002-May 2007

DISSERTATION AND THESIS

Kalhor, E. 2019 (Expected) 'Modeling Resilience in Complex Systems: Implications from the Energy-Water Nexus', Doctoral dissertation, University of New Mexico

Kalhor, E. 2017 'Integrated framework for wildfire risk mitigation planning at the wildland/urban interface', Doctoral dissertation, University of New Mexico, Available from: http://digitalrepository.unm.edu/ce_etds/166

Kalhor, E. 2010 'Time-Cost trade-off optimization of construction projects with line of credit financing constraint using multi-objective ant colony optimization' Unpublished Master's thesis, Iran University of Science and Technology, Tehran, Iran.

JOURNAL PUBLICATIONS

Kalhor, E. & Valentin, V. 2018, 'Cost estimation framework for optimal retrofit planning to mitigate residential building vulnerability to wildfires.', *Journal of Construction Engineering and Management*, Vol. 144, no. 4, pp 05018003, Available from: [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001455](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001455).

Zemlick, K., **Kalhor, E.**, Thomson, B.M., Chermak, J.M., Sullivan Graham, E.J. & Tidwell, V.C. 2018, 'Mapping the energy footprint of produced water management in New Mexico', *Environmental Research Letters*, Vol. 13, Available from: <https://doi.org/10.1088/1748-9326/aa9e54>.

Kalhor, E., Horn, B.P., Valentin, V. & Berrens, R.P. 2018, 'Investigating the effects of both historical wildfire damage and future wildfire risk on housing values.', *International Journal of Ecological Economics and Statistics*, Vol. 39, no. 1, pp 1-25.

Movahedian Attar, A., Khanzadi, M., Dabirian, S., **Kalhor, E.** 2013, 'Forecasting contractor's deviation from the client objectives in prequalification model using support vector regression.', *International Journal of Project Management*, Vol. 31, no. 6, pp 924-936, Available from: <https://doi.org/10.1016/j.ijproman.2012.11.002>.

Afshar, A., **Kalhor, E.** 2011, 'An extension to stochastic time-cost trade-off problem optimization with discounted cash flow', *International Journal of Optimization in Civil Engineering*, Vol. 1, no. 4, pp 557-570, Available from: <http://ijocce.iust.ac.ir/article-1-63-en.html>.

Aladini, K., Afshar, A. & **Kalhor, E.** 2011, 'Discounted cash flow time-cost trade-off problem optimization: ACO approach.', *Asian Journal of Civil Engineering*, Vol. 12, no. 4, pp 511-522.

Kalhor, E., Khanzadi, M., Eshtehardian, E. & Afshar A. 2011, 'Stochastic time-cost optimization using non-dominated archiving ant colony approach.', *Automation in Construction*, Vol. 20, no. 8, pp 1193-1203, Available from: <https://doi.org/10.1016/j.autcon.2011.05.003>.

WORKING PAPERS

'Self insurance and market insurance: investigating homeowners' financial decision making in wildfire prone areas', with Valentin, V. and Berrens, R.P.

'How prices shape the supply of crude oil and natural gas in the southwestern United States ', with Chermak J.M.

'Energy and water security in the Permian of southeastern New Mexico: a system dynamics approach', with the Social and Natural Sciences Nexus team at New Mexico EPSCoR, Energize New Mexico Project, co-leads: Chermak, J.M, and Fernald, Sam

CONFERENCE PROCEEDINGS

Kalhor, E.^P, & Chermak J.M. 2018, 'Forecasting New Well Supply For Oil and Natural Gas.', In *Evolving Energy Realities, Adapting to what's next, 36th USAEE/IAEE North American Conference, Sep 23-26, Washington DC*.

Kalhor, E.^P, & Chermak J.M. 2017, 'How spot prices shape future drilling activity: an empirical analysis in New Mexico.', In *Riding the Energy Cycles, 35th USAEE/IAEE North American Conference, Nov 12-15, Houston TX*.

Kalhor, E.^P, & Valentin, V. 2018, 'Dynamics of homeowner mitigation response to wildfire hazard.', In *Construction Research Congress 2018: , Apr 2-4, New Orleans LA*.

Kalhor, E.^P, & Chermak J.M. 2017, 'How spot prices shape future drilling activity: an empirical analysis in New Mexico.', In *Riding the Energy Cycles, 35th USAEE/IAEE North American Conference, Nov 12-15, Houston TX*.

Sanabria, N.M.^P, Valentin, V., Bogus, S.M., Zhang, G., & **Kalhor, E.** 2017, 'Comparing Neural Networks and Ordered Probit Models for Forecasting Pavement Condition in New Mexico.', In *TRB 2017 Annual Meeting, Jan 8-12, Washington, DC*, Transportation Research Board, Washington DC.

Zemlick, K.^P & **Kalhor, E.** 2016, 'Mapping the energy footprint and costs of produced water management in the Permian Basin, New Mexico.', In *Implications of North American Energy Self-Sufficiency, 34th USAEE/IAEE North American Conference, Oct 23-26, Tulsa, OK*.

Kalhor, E.^P, Zemlick, K., Chermak, J.M.,& Benedict, K. 2016, 'Data management and New Mexico's energy-water nexus.', In *The 2016 Summer Specialty Conference on GIS and Water Resources IX , July 11-13, Sacramento, CA*.

Kalhor, E.^P & Valentin, V. 2016, 'Using cadastral surveys and GIS data for an automated multi-criteria assessment of the vulnerability of residential parcels to wildfires.', In *Construction Research Congress 2016: Old and New Construction Technologies Converge in Historic San Juan, May 31-June 2, San Juan, Puerto Rico*.

Kalhor, E., Valentin, V. 2015, 'Risk of wildfires with known ignition points: case of residential buildings.', In *5th International/11th Construction Specialty Conference, June 8-10, Vancouver, British Columbia, Canada*, presented by Bogus, S.M.

Zemlick, K.^P, **Kalhor, E.**, Chermak, J.M., & Thomson, B.M. 2015, 'The energy water nexus: A dynamic spatial study of natural gas in the San Juan basin, New Mexico.', In *The Dynamic Energy Landscape, 33rd USAEE/IAEE North American Conference, Oct 25-28, Pittsburgh, PA*.

Kalhor, E., Valentin, V.^P, Bogus, S.M., Zhang, G., & Sanabria, N.M. 2013, ‘Application of an Ordered-Probit model in decision making for infrastructure asset management: a case study of pavement condition assessment.’, In *CSCE 2013 General Conference, May 29-June 1, Montreal, Quebec, Canada.*

Sanabria, N.M.^P, **Kalhor, E.,** Valentin, V., Bogus, S.M.,& Zhang, G. 2013, ‘Computational GIS and agent-based model development for routing optimization to facilitate pavement condition data collection.’, In *The 2013 ASCE International Workshop on Computing in Civil Engineering, June 23-25, Los Angeles, CA.*

Afshar, A., &**Kalhor, E.** 2010, ‘A modified search procedure for permutation-based ant colony algorithm for resource constrained scheduling.’, In *2nd International Conference on Engineering Optimization, Sept 6-9, Lisbon, Portugal.*

POSTER PRESENTATION

Kalhor, E., Zemlick, K, Joshi J., ... & Chermak, J.M. 2017, ‘Modeling the energy/water nexus in New Mexico.’ Unpublished poster presentation at *2017 All Hands Meeting, New Mexico, EPSCoR, Apr 27, Albuquerque, NM.*

Kalhor, E., Zemlick, K., & Chermak, J.M. 2016, ‘Empirical analysis on vertical and horizontal wells in San Juan basin.’ Unpublished poster presentation at *Implications of North American Energy Self-Sufficiency, 34th USAEE/IAEE North American Conference, Oct 23-26, Tulsa, OK.*

Kalhor, E., Zemlick, K., Thomson, B.M., Chermak, J.M. 2015, ‘Risk analysis of recycling containment and treatment of produced water from oil and gas production: a conceptual framework.’ Unpublished poster presentation at *New Mexico Academy of Science Research Symposium, Nov 5, Albuquerque, NM.*

Kalhor, E., & Valentin, V. 2014, ‘Quantifying the risks of wildfire to buildings in the Wildland/Urban Interface (WUI) .’ Unpublished poster presentation at *Construction Research Congress 2014: Construction in a Global Network, May 19-21, Atlanta, GA.*

PROFESSIONAL RESEARCH HISTORY

❖**Research Assistant**, Department of Economics, University of New Mexico May 2015-Present

Modeling Resilience in Complex Systems: Implications from the Energy-Water Nexus

- Conducting empirical analysis to understand the impact of price shocks on the energy supply
- Performing analysis of oil and gas operations’ waste water management planning
- Conducting Cost-benefit analysis of energy and water conservation
- Assessing the impacts of adoption of new technologies on water scarcity

❖ **Research Assistant**, Department of Civil Engineering, University of New Mexico Aug 2012-May 2017

Integrated Framework for Wildfire Risk Management at the Wildland/Urban Interface

- Investigated the impacts of wildfire damage and risk on housing prices
- Developed optimal hazard mitigation plans for residential properties
- Modeled homeowners’ dynamic mitigation investment decisions: self versus market insurance
- Assessed wildfire risk to human values in the wildland/urban interface

❖ **Project Assistant**, Department of Civil Engineering, University of New Mexico Sep 2013-June 2014

Information Technology Assessment for Electrical Contractors

- Identified challenges in implementation of information technology for electrical contractors
- Evaluated the efficiency of information technologies in electrical contractors' operations
- Identified obstacles to efficient utilization of information technologies in electrical contractors' operations

❖ **Research Assistant**, Department of Civil Engineering, Iran University of Sci. & Tech. Oct 2007-Jul 2010

Construction Operations Research

- Developed an ant colony algorithm for time-cost optimization of construction project scheduling under uncertainty
- Improved the existing ant colony optimization algorithm for construction project scheduling problem under uncertainty to include cash constraints

TEACHING EXPERIENCE

Instructor (with full course responsibility), Department of Economics, University of New Mexico Fall 2018

Course Title: Introductory Microeconomics

Teaching Assistant, Department of Economics, University of New Mexico Summer 2018

Course Title: Introductory Macroeconomics [Online]

Teaching Assistant, Department of Economics, University of New Mexico Summer 2018

Course Title: Introductory Microeconomics [Online]

Guest Lecturer, Department of Architecture, Islamic Azad University Davamand Branch Jan-May 2010

Course Title: Construction Site Management Principles

Teaching Assistant, Department of Civil Engineering, Iran University of Sci. & Tech. Oct 2009-May 2010

Course Title: Systems Engineering

JOURNAL/CONFERENCE REFEREE

- Automation in Construction (since 2011)
- Construction Research Congress (since 2015)
- Journal of Management in Engineering (since 2017)
- Journal of Construction Engineering and Management (since 2017)
- Construction Management and Economics (Since 2018)
- International Journal of Construction Management (Since 2018)
- Natural Hazards Review (Since 2018)

AWARDS / CERTIFICATES

Editor's choice – Journal of Construction Engineering & Management Vol. 144, no. 4 Apr 2018

Outstanding Reviewer – Automation in Construction Feb 2017

Recognized Reviewer – Automation in Construction Sep 2016

WORKSHOPS / CERTIFICATES

NSF Cyber Carpentry: Data Life-Cycle Training with the Datanet Federation Consortium,
University of North Carolina, School of Information and Library Science

July 2018

MEMBERSHIPS

American Society of Civil Engineers

ASCE Construction Institute's Construction Research Council

COMPUTER SKILLS

Computing Systems: Linux (2)

Programming: Python (3); MATLAB (3); VBA (3); R (2)

Software Packages: ArcGIS (4); Powersim Studio (4); NetLogo (3); The DecisionTools Suite (3)

Collaboration Software: GitHub (2)

* Values in parentheses are proficiency levels: (1) Basic Knowledge, (2) Limited Experience, (3) Practical Application, (4) Applied Theory, (5) Recognized Authority