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Education:

PhD in Transportation Engineering, Northwestern University, 1980.

MS in Civil Engineering (Planning), Stanford University, 1976.

BS (MS equiv.) in Civil Engineering, Shiraz University, Shiraz, Iran, 1975.

Language Ability: Farsi (native Language), English (fluent).

Academic Appointments:

Assistant Prof...: Isfahan University of Technology (IUT), Dept. of Industrial
Eng. and Systems Planning, 1981-1989; and Sharif University of
Technology (SUT), Dept. of Civil Eng., 1990-2001.

Associate Prof.: SUT, Dept. of CE, 2001-2006.

Professor: June 2006.

Honors:

Distinguished Professor, CE Alumni, Sharif Univ. of Tech. (SUT) 2014.

Award of Appreciation from Tehran Comprehensive Transportation and
Traffic Studies, for the scientific administration of the Conference on the
Economic Dimensions of Urban Transportation, 2011.

Distinguished Professor of CE Graduate Studies, (SUT). 2010.

Award of Appreciation from the Society of Transportation Engineers, for
Sincere lifetime participation in research and development of
Transportation studies for the City of Mashhad, 2008.

Distinguished Professor of Sharif Univ. of Tech. (CE Dept.), 2007.

Award of Appreciation for Research, 40th Anniversary of SUT, 2006.

Award of Appreciation for applied research for the year 2005.

Ranking first in BS studies.

Several higher degree *education scholarships* (BS, MS, and PhD).

Professional Memberships:

Member and invited member of several scientific councils, scientific journal
board of editors, conference board of referees.

Executive Responsibilities:

Head of Transportation Group of the Dept. of CE, SUT, 2007-10.
Director of the Institute for Transportation Studies and Research, SUT, 2000-2006.
Head of Transportation Group of the Dept. of CE, SUT, 1992-99.
Head of Transportation Group of the Institute for Research in Planning and Development (IRPD), Tehran, Iran, 1994-99.
Director of several MS-equivalent educational programs in transportation for Ministry of Interior and Municipality of Tehran 1991-93.
General Secretary of the 1st and the 2nd Conference on Planning and Development, 1990-92.
Deputy in Academic Affairs, IRPD, 1989-92.
Member of some of the decision-making bodies of IUT, SUT, and IRPD, 1982-date.
Head of the Dept. of Industrial Eng. and Systems Planning, IUT, 1984-86.

Teaching:

Taught the following courses at various levels (quantitative/qualitative, for students/executives, and regular/short-term):
Engineering Economy (undergraduate), *Transportation Systems Analysis* (graduate), *Transportation Planning* (both undergrad. and grad. levels), *Decisions and Project Evaluation in Transportation* (graduate), and *Traffic Engineering* (undergrad./ grad.), the latter taught only once.

Sabbatical Leave:

Carleton University, Department of Civil and Environmental Engineering, 1999.

Recent Refereed Papers:

1. Poorzahedy H, Aghababazadeh B, and Babazadeh A (In Press). Dynamic Network pricing to Contain Urban Air Pollution in Stochastic Environment. *Scientia Iranica*.
2. Sharifi MS, Shahabi M, Abshar E, Khorgami MH and Poorzahedy H (In Press). Population Capacity Threats to Urban Area Resiliency: Observations on Chaotic Transportation Network Behavior. *Scientia Iranica*.
3. Amirgholi M, Rezaeestakhrue and Poorzahedy H (2015). Multiobjective Cordon Price Design to Control Long Run Adverse Traffic Effects in Large Urban Areas. **NETNOMICS**, August 2015, Vol. 16 No. 1, pp 1-52.
4. Mamdoohi AR, Kermanshah M, and Poorzahedy H (2014). Fuzzy Random Utility Choice Models: The Case of Telecommuting Suitability. **International Journal of Transportation Engineering**, Vol.1, No.4, pp 255-270.
5. Poorzahedy H and Shirazi DM (2013). A Simulated Annealing Approach to Solve the Network Design of One-Way Streets: Case of Shiraz Network. **Computational Methods in Civil Engineering**, Vol.4, No.1, pp 83-101.

6. Edrisi A, Poorzahedy H, Nassiri H, and Nourinejad M (2013). *A Multi-agent Optimization Formulation of Earthquake Disaster Prevention and Management*. **European J. of Operational Research**, 229, 261-275.
7. Poorzahedy H, and Rezaei A (In Press). *Peer Evaluation of Multi-attribute Analysis Techniques: Case of Light Rail Transit Network Choice*. **Scientia Iranica** (Elsevier), DOI: 10.1016/j.scient.2012.12.031.
8. Poorzahedy H, and Safari F (2011). *An Ant System Application to the Bus Network Design Problem: An Algorithm and a Case Study*. **Public Transport**, 3(2), 165-187.
9. Babazadeh A, Poorzahedy H, and Nikoosokhan S (2011). *Application of Particle Swarm Optimization (2011). Application of Particle Swarm Optimization to Transportation Network Design Problem*. **J. of King Saud University- Science**, 23(3), 293-300.
10. Shir-mohammadli M, Shetab-Bushehri SN, Poorzahedy H, and Hejazi SR (2010). *A comparative study of a hybrid Logit-Fratar and Neural network models for trip distribution: Case of the city of Isfahan*, **J. of Advanced Transportation**, John Wiley and Sons, Ltd DOI:10.1002/atr.143.
11. Poorzahedy H, and Rouhani OM (2007), *Hybrid meta-heuristic algorithms for solving network design problems*, **European J. of Operational Research**.
12. Poorzahedy H, and Shetab-Bushehri SN (2006), *Pessimistic equilibrium flow and its network design implications*, **European J. of Transport and Infrastructure Research**.
13. Mamdoohi AR, Kermanshah M, and Poorzahedy H (2006), *Telecommuting suitability modeling: An approach based on the concept of abstract job*, **Transportation**, 33(4).
14. Poorzahedy H, and Shetab-Bushehri SN (2005), *Network performance Improvement under stochastic events with long term effects*, **Transportation**, 32(1), 65-85.
15. Poorzahedy Hand Abulghasemi F (2005), *Application of Ant System to network design problem*, **Transportation**, 32(3), 251-273.
16. Rassafi AA, Vaziri M, and Poorzahedy H (2005), *Simulating sustainable transport using predator- prey model*, **The International J. of Modeling and Simulation**, 25(3), 147-155.
17. Rassafi AA, Poorzahedy H, and Vaziri M (2005), *An alternative definition of Sustainable development using stability and chaos theories*, **Sustainable Development**, 13 (4).
18. Aashtiani HZ, and Poorzahedy H (2004), *Braess' Phenomenon in the management of networks and dissociation of equilibrium concepts*, **Transportation Planning and Technology**, 27(6), 469-482.
19. Poorzahedy H, Tabatabaee N, Kermanshah M, Aashtiani HZ, and Toobaei S (2004), *World City mode choice: Choice of rail public transportation*, **Scientia Iranica**, 11(4), 320-331.
20. Poorzahedy H, and Shetab-Bushehri SN (2003), *European Project selection in traffic accident prevention and mitigation*, **European J. of Transport and Infrastructure Research**, 3, 241-261.

Study areas of Supervised BS Projects, MS theses, and PhD

Dissertations (year(s) of completion):

Activity allocation:

- Evolutionary joint land-use and transportation project selection (2012, 2013, 2014).
- Basic employment definition and its sensitivity analysis (1996).
- Capacity constrained Garin-Lowry model (1989).
- Application of Garin-Lowry model to real cases (1987).

Transportation demand analysis and prediction:

- Fuzzy-stochastic choice model (2008)
- Country-wide goods transportation (2002).
- Mode choice models of large metropolitan areas (1996).
- Maximum likelihood calibration software for demand models (1992).
- Demand models (trip prod./attract., dist., and mode choice) of a large city(1989).
- Estimating O/D demands from link flows (1988).
- Fuzzy-Random choice models (2008)

Air pollution control:

- Simple emission reduction alternatives (2000).
- CBD traffic control to reduce air pollution (1995, 2008).
- Emission Reduction by Using New Technology Autos (2011).

Public transportation network design:

- Application of Ant System to light rail transit, bus and bus rapid transit (BRT) network design (2000, 2005, 2008).
- Bus network design by Genetic algorithm (2003).
- Algorithmic solutions to bus network design problem (1992,1994,1998)
- Suitable structure of rapid transit network to urban developments (2004).

Network design problem (ND):

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- Comparison of approximate and meta-heuristic solution algorithms (2007).
- Hybrid meta-heuristic algorithms for solving ND (2004).
- Application of Ant System in solving ND problem (2001).
- Algorithmic approaches to country-wide network design problem (1991,1992).
- Comparisons of several ND algorithms (1986, 1987, 2007).

New dimensions in network design problem:

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- Network design under demand side chaotic flow (2010).
- Network design under supply side chaotic flow (2010).
- Network improvement problems for stochastic events:
 - (a) with long term effects (e.g., earthquakes) (2004,2008),
 - (b) traffic accidents (2004), and
 - (c) travel time fluctuations (2004, 2006, 2009).
- Network design based on reliability (1998, 2001)
- Project evaluation for low volume roads (1997).

Decision Analysis:

- Multi-criteria evaluation of decision analysis procedures (2004).
- Decision analysis of choosing between alternative light rail transit networks (2002).

Road network maintenance problem (RNMP):

- An evolutionary algorithm to solve RNMP (2011).
- Genetic algorithm application to RNMP (2000).
- Markov decision process application to RNMP (2000).
- Simple procedures to solve RNMP (1996).
- Review of methods to solve RNMP (1995).
- Heuristic methods to solve RNMP (1994).
- Application of Markov decision process to solve RNMP (1987, 1991).

Sustainable transportation:

- Chaotic flows in transportation networks with path choice based on travel time and density (2011).
- Need for urban network expansion/management: Application of the theory of chaos (2006).
- Sustainable transportation and application of the theory of chaos (2004).

Traffic Management:

- Pricing automobile characteristics to curb/promote demand and supply of unwanted/new models (2015).
- Pricing networks to control air pollution (2002, 2005, 2009).
- Congestion pricing to control CBD traffic (2001).
- Zone pricing to control area-wide congestion and air pollution (2009).

Network expansion finance:

- Network Development Problem by Build-Operate-Transfer schemes (2007, 2009).
- Optimal tolls for financing road network projects (2006, 2007, 2008).

Network Flow:

- Flow estimation in Networks with day-to-day fluctuations (2008, 2011).
- Approximate methods to estimate network Reliability (2013)

Network Pricing Impacts:

- Long-term effects of cordon pricing (2008, 2010).

Road Alignment Design:

- Hybrid meta-heuristic algorithm to solve 3D road network alignment problem (2011, 2013).

Disaster Management:

- Network restoration for emergency response (2012, 2014).
- Travel patterns after severe earthquakes (2014)

Other topics:

- Mixed generalized extreme value models in multi-objective, multi-class traffic assignment (2013)
- Flow estimation using macroscopic flow parameters (2013).
- Design of a taxi system coordinated with light rail and bus transit systems (2004).
- Network aggregation (1980).

Funded Research and Development Projects:

1. National Transportation Planning: 2006-07
Ministry of Roads and Transportation
Objectives include: Supervision and quality control of the project activities.

2. Comprehensive Urban Transportation Planning:
 - a. Municipality of the City of Tehran, 7.5 mil. population, 1994-97.
 - b. Municipality of the City of Mashad, 2.1 million, 1994-97.
 - c. Municipality of the City of Isfahan, 1.3 million, 1985-89.
 - d. Municipality of the City of Isfahan, 1.5 million, 2001-04.
 - e. Municipality of the City of Shiraz, 1.1 million, 1990-92.
 - f. Municipality of the City of Shiraz, 1.3 million, 2000-03.
 - g. Municipality of the City of Ghom, 1.0 million, 2003-06.
 - h. Municipality of the City of Tehran, 8.0 million, 2010-2011.

Objectives include: Design and application of procedure to (1) define problem, (2) gather information and create data-base, (3) build models of demand estimation and traffic assignment, (4) build decision-making models, and (5) prepare short, and long, term plans.

3. Design of Comprehensive Transportation Study
Municipality of the City of Mashad, 1992-1993.
Objectives include: (1) Design procedures for a reference comprehensive transportation Study, (2) Evaluation of Tenderer proposals for doing such studies for the City of Mashad.

4. Design of an integrated public transportation system, 2002-2004.
Municipality of Mashad.
Objectives include: Design of an integrated (a) light rail transit system, (b) bus network, and (c) taxi services, as well as (d) design of financial plan.

5. Integrated design of bottleneck intersections:
 - a. Municipality of Mashad, 2002-04;
 - b. Municipality of Siraz, 2004,07Objectives include: (a) Identification of bottleneck intersections, (b) design of appropriate intersection design, and (c) design of financial plan.

6. National Transportation Planning, 1987-1992.
Plan and Budget Organization.
Objectives include (a) developing a zoning system, (b) developing an environmental statement plan for highway impact assessment, (c) developing a traffic assignment model, (d) forecasting future demand for transportation, and (e) developing a network design procedure to design the network and choose among the available highway projects (whether new or committed but halted for lack of resources) under various scenarios and budget constraints.

7. Passenger transportation in the Industrial Area of Zayendeh Roud, 1983-1985.
Mobarekeh Steel Co.
Objectives include: Design of the area-wide transportation system to meet the area's future goods and passenger transportation demand.

8. Locating Wheat Storage infrastructure, 1992-1993.
State Grain Organization.
Objectives include: (a) Facility location, and (b) Facility size design, and (c) Wheat transportation planning from production to storage to consumption.