Navid Ghaffarzadegan

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ACADEMIC APPOINTMENT
- Assistant Professor, Industrial and Systems Engineering, Virginia Tech, August 2013 – present
  - Director of the System Dynamics Lab
- Research Affiliate, MIT, Sociotechnical Systems Research Center, Jan 2014 – present
- Postdoctoral Researcher, MIT, Engineering Systems Division, Jan 2012- Aug 2013

EDUCATION
- Ph.D.   Public Administration and Policy, Major: System Dynamics, 2011
  - State University of New York at Albany
  - Dissertation: "Essays on Applications of Behavioral Decision Making in Public Management and Policy;" Winner of four dissertation awards. Dissertation Advisor: Professor David. F. Andersen
- M.B.A   Management, Major: System Dynamics, 2005
  - Sharif University of Technology
- B.S.   Mechanical Engineering, 2001
  - Sharif University of Technology

GRANTS *(Total: $10,178,591; Direct share: $1,130,640)*
- Shaping health research workforce for tomorrow: Understanding career paths and productivity of early career health-policy researchers. Sponsor: Scholars program, Virginia Tech, ISCE. $30,000. Role: PI. June 2017- May 2018.
- Productivity Data Analysis for Science Workforce Modeling (Supplemental Grant 2U01GM094141-05). Sponsor: NIH. $357,998. PI: Hawley (Ohio State University). Role: Co-I. Share: $182,914. June 2016- May 2018.
- System Dynamics Modeling of Market Growth for the SupportAssist Program at Dell. Sponsor: Dell, Inc. $240,284. Role: PI. January 2016 - December 2017.
- A Model-Based Examination of Behavioral & Social Science Workforce: Improving Health Outcomes (Grant 2U01GM094141-05). Sponsor: NIH. $1,562,123. PI: Hawley (Ohio State University). Role: Co-I. Share: $543,083. February 2015- January 2019.
- System Dynamics Modeling for Understanding Complexities of Post-Traumatic Stress. $7,988,186. PI: Dr. Thomas Kochan (MIT). Role: Co-I. Share: $134,359. January 2014- September 2015.

AWARDS
- Excellence Award for Outstanding New Assistant Professor, College of Engineering, Virginia Tech. 2016
- Lupina Young Researchers Award in Health System Dynamics for the paper "Beyond Personality Traits and Financial Incentives: Bias and Variation in Medical Practices as Results of Experiential Learning" ($2,500). 2011
- Dana Meadows Student Paper Award, 29th Int'l System Dynamics Conference for "Beyond Personality Traits and Financial Incentives: Bias and Variation in Medical Practices as Results of Experiential Learning" ($1,200). 2011
- System Dynamics Society tuition and stipend scholarship. 2006-2011

- Barry Richmond Scholarship Award, 26th Int'l System Dynamics Conference for the paper "Effect of Conditional Feedback on Learning" ($1,000). 2008
- Honorable Mention in Dana Meadows Student Paper Award, 26th International System Dynamics Conference for the paper "Effect of Conditional Feedback on Learning." 2008

PUBLICATIONS

1) Baghaei Lakeh. A, Ghaffarzadegan, N. 2017. Biomedical vs. Behavioral and Social Sciences: Trends and Variations in Studies of HIV/AIDS. *Nature Scientific reports*. Forthcoming.
2) Ghaffarzadegan, N., Xue, Y., Larson, RC. 2017. Work-Education Mismatch: An Endogenous Theory of Professionalization. *European Journal of Operational Research* 261(3): 1085–1097.
3) Hur, H., Andalib, M., Maurer, J., Hawley, J., Ghaffarzadegan, N., 2017. Recent Trends in Behavioral and Social Sciences Research (BSSR) Workforce in the U.S. *PLoS ONE*. 12(2): e0170887.
4) Ghaffarzadegan, N., Hawley, J., Larson, R.C. 2017. Education as a Complex System, *Systems Research and Behavioral Science* 34(3): 211-215.
5) Guevara, J.A., Garvin, M., and Ghaffarzadegan, N. 2017. The Capability Trap of the US Highway System: Policy and Management Implications. *Journal of Management in Engineering* 33(4).
6) Baghaei Lakeh, A., Ghaffarzadegan, N. 2016. The Dual-Process Theory and Understanding of Stocks and Flows. *System Dynamics Review* 32(3-4): 309-331.
7) Ghaffarzadegan, N., Ebrahimvandi, A., and Jalali, M. 2016. A Dynamic Model of Post-Traumatic Stress Disorder for Military Personnel and Veterans. *PLoS ONE* 11(10), e0161405.
   Media Coverage:
      i. Newsweek: PTSD Likely to Remain a Casualty of War for Veterans, Active Military
      ii. Business Insider: Study estimates the number of PTSD cases among military veterans in 10 years.

8) Azadeh-Fard, N., Ghaffarzadegan, N., and Camelio, J., 2016. Can a patient's in-hospital length of stay and mortality be explained by early-risk assessments? *PLoS ONE* 11(9), e0162976.
9) Baghaei Lakeh, A., Ghaffarzadegan, N. 2015. Does Analytical Thinking Improve Understanding of Accumulation? *System Dynamics Review* 31(2): 46–65.
10) Ghaffarzadegan, N., Larson, R.C. 2015. Posttraumatic Stress Disorder: Five Vicious Cycles that Inhibit Effective Treatment, *The Army Medical Department Journal* (October-December): 8-13.
11) Richardson, G.P., Black, L.J., Deegan, M., Ghaffarzadegan, N., Greer, D., Kim, H., Luna-Reyes, L.F., MacDonald, R., Rich, E., Stave, K.A., Zimmermann, N., Andersen, D.F. 2015. Reflections on Peer Mentoring for Ongoing Professional Development in System Dynamics. *System Dynamics Review* 31(3): 173-181.
12) Hur, H., Ghaffarzadegan, N., Hawley, J. 2015. Effects of Government Spending on Research Workforce Development: Evidence from Biomedical Postdoctoral Researchers, *PLoS ONE* 10(5): e0124928.
13) Ghaffarzadegan, N., Hawley, J., Larson, R.C., Xue, Y. 2015. A Note on PhD Population Growth in Biomedical Sciences, *Systems Research and Behavioral Science* 32(3): 402–405.

14) Larson, RC, Ghaffarzadegan, N., Xue, Y. 2014. Too Many PhD Graduates or Too Few Academic Job Openings: The Concept of R0 in Academia. *Systems Research and Behavioral Science* 31(6): 745–775.
   Media Coverage:
   i.   New York Times: So Many Research Scientists, So Few Openings as Professors
   ii.   Discover magazine: Does Science Produce Too Many PhD Graduates?
   iii. Cosmos magazine: Are there too many science PhDs or too few jobs?

15) Ghaffarzadegan, N., Hawley, J., Desai, A. 2014. Research Workforce Diversity: The Case of Balancing National vs. International Postdocs in U.S. Biomedical Research. *Systems Research and Behavioral Science* 31(2): 301-315.

16) Ghaffarzadegan, N., Epstein, AJ, Martin, EG. 2013. Practice Variation, Bias, and Experiential Learning in Cesarean Delivery: A Data-Based System Dynamics Approach. *Health Services Research* 48: 713–734.

17) Rouwette, E. A., & Ghaffarzadegan N. 2013. The system dynamics case repository project. *System Dynamics Review* 29(1): 56–60.

18) Larson, R.C., Ghaffarzadegan, N., Gomez Diaz, M. 2012. Magnified Effects of Changes in NIH Research Funding Levels. *Service Science* 4(4): 382-395.
   Media Coverage:
   i.   NPR blog: After The NIH Funding 'Euphoria' Comes The 'Hangover'

19) Ghaffarzadegan, N., Andersen, DF. 2012. Modeling Behavioral and Dynamic Complexities of Warning Issuance for Domestic Security. *International Public Management Journal* 15(3): 337-363.

20) Ghaffarzadegan, N., Stewart, TR. 2011. An extension to the constructivist coding hypothesis as a learning model for selective feedback when the base rate is high. *Journal of Experimental Psychology: Learning, Memory & Cognition* 37(4): 1044-1047.

21) Ghaffarzadegan, N., Lyneis, J., Richardson, G.P. 2011. How Small System Dynamics Models Can Help the Public Policy Process. *System Dynamics Review 27*(1): 22-44.
   Reprinted:
      Ghaffarzadegan, N., Lyneis, J., Richardson, G.P. 2015. Policy Informatics with Small System Dynamics Models: How Small Models Can Help the Public Policy Process In: E. Johnston, ed. Governance in the Information Era: Theory and Practice of Policy Informatics. Routledge Press.

22) Ghaffarzadegan, N. and Tajrishi, AT. 2010. Economic transition management in a commodity market: the case of the Iranian cement industry. *System Dynamics Review 26*(2): 139–161.

23) Ghaffarzadegan, N. 2008. How a System Backfires: Dynamics of Redundancy Problems in Security. *Risk Analysis* 28(6): 1669-1687.

BOOK CHAPTERS
1) Ghaffarzadegan, N., Larson, R. C., Fingerhut, H. A., Jalali, M. S., Ebrahimvandi, A., Quaadgras, A., & Kochan, T. 2017. Model-Based Policy Analysis to Mitigate Post-Traumatic Stress Disorder. In: J.R. Gil-Garcia, T.A. Pardo, and L.F. Luna Reyes ed. Policy Analytics, Modelling, and Informatics: Innovative Tools for Solving Complex Social Problems. Springer. Forthcoming.

2) Ghaffarzadegan, N., Lyneis, J., Richardson, G.P. 2015. Policy Informatics with Small System Dynamics Models: How Small Models Can Help the Public Policy Process, In:

E. Johnston, ed. Governance in the Information Era: Theory and Practice of Policy Informatics. Routledge Press.

TEACHING EXPERIENCE
- Virginia Tech, Department of Industrial and Systems Engineering
  - ISE 4984, System Dynamics and Systems Thinking, 3 Credits:
    - Spring 2017 (17 Enrolled, 5.8/6 Evaluation)
    - Spring 2016 (15 Enrolled, 5.7/6 Evaluation
  - ENGR 5104, Applied Systems Engineering: System Dynamics, 3 Credits:
    - Fall 2016 (25 Enrolled, 5.6/6 Evaluation)
    - Fall 2015 (25 Enrolled, 5.6/6 Evaluation)
  - ISE 5015, Management of Change, Innovation, and Performance in Organizational Systems I, 3 Credits:
    - Fall 2014 (19 Enrolled, 5.8/6 Evaluation)
    - Fall 2013 (9 Enrolled, 5.3/6 Evaluation)
- National Institutes of Health (NIH)
  - Workshop Assistant in 2010 and 2011

ACADEMIC & EXECUTIVE SERVICES
- Associate Editor: System Dynamics Review (2016 – now)
- Journal and Conference Review
  - System Dynamics Review, Systems Research and Behavioral Science, Systems, Risk Analysis Journal, European Journal of Operational Research (EJOR), Journal of Operational Research Society (JORS), Journal of Public Administration Research and Theory (JPART), Journal of Policy Analysis and Management (JPAM), International Public Management Journal, Science and Public Policy Journal, Academy of Management Conference (2010, 2011), and International System Dynamics Conference (2006 – 2013).
- Membership in Professional Societies
  - Academy of Management (AOM), Association for Public Policy Analysis and Management (APPAM), Institute for Operations Research and the Management Sciences (INFORMS), System Dynamics Society, and Society of Judgment and Decision Making.

- Major university services
  - Member of the stakeholder committee for Virginia Tech's Strategic Growth Area (SGA) on Policy (provost-supported initiative, 2016-now)
    - Co-chair of curriculum sub-committee of Policy SGA
  - Member of Graduate Policy Council, Virginia Tech, ISE (2014-now)
  - Member of Strategic Planning Committee, Virginia Tech, ISE (2016-now)

INVITED TALKS
- AcademyHealth Invited Panel (2015), Systems Dynamics Society, PhD colloquium (2014), MIT, Sociotechnical Systems Research Center (2014), AcademyHealth Invited Panel (2014), Tehran University (2014), Battelle Center for Science & Technology Policy, Ohio State University (2013); Hematology Workforce Working Group, NIH Heart, Lung and Blood Institute (2013); Heart Division; NIH Heart, Lung and Blood Institute (2013); Office of Behavioral and Social Sciences Research; National Institutes of Health (2013); Virginia

Tech, Department of Industrial and Systems Engineering (2013); MIT, Sloan School of Management (2013); Yale School of Public Health (2012); George Washington University (2013); John Glenn School of Public Affairs, The Ohio State University (2012); MIT, SENSEable City Lab (2012); Albany Medical Hospital (2011).

REFERENCES

- o Professor David F. Andersen
  Distinguished Service Professor of Public Administration and Information Science; Rockefeller College of Public Affairs; University at Albany (SUNY); david.andersen@albany.edu; 518-442-5258

- o Professor Richard C. Larson
  Mitsui Professor of Engineering Systems; Engineering Systems Division; Massachusetts Institute of Technology (MIT); rclarson@mit.edu; 617-253-3604

- o Professor George P. Richardson
  Emeritus Professor of Public Administration and Policy, and Informatics; Rockefeller College of Public Affairs; University at Albany (SUNY); gprichardson@albany.edu; 518-442-3859

- o Professor Eileen Van Aken
  Professor; Interim Head of Department; Industrial and Systems Engineering; Virginia Tech; evanaken@vt.edu; 540-231-6656