

JAN YOUTIE

EDUCATIONAL BACKGROUND:

Ph.D., 1981, Emory University, Political Science
M.A., 1979, Emory University, Political Science
B.S., 1977, Emory University, Political Science

EMPLOYMENT HISTORY

Georgia Institute of Technology

- Enterprise Innovation Institute: Director, Policy Research Services, 2011 to present, Manager Policy Services 2006 to 2010, Principal Research Associate, 1999 to present, Senior Research Associate, Enterprise Innovation Institute (formerly Economic Development Institute) Georgia Institute of Technology, 1992 to 1999
- Program in Science, Technology and Innovation Policy: Director and Co-founder, 2004 to present
- School of Public Policy: Adjunct Associate Professor, School of Public Policy, Georgia Institute of Technology, 1998 to 2013; Adjunct Research Scientist, 2014 to present

Kennesaw State University, Assistant Director, A.L. Burruss Institute of Public Service, 1990-1992

Bank Earnings International, Vice President, 1982-1990

Electronic Banking, Inc., Senior Research Associate, 1981-1982

INTERESTS

Technology-based economic development, emerging technology assessment, manufacturing competitiveness, innovation, bibliometric and patent analysis, knowledge measurement, evaluation.

JOURNAL ARTICLES

Youtie, J., Carley, S., Porter, A.L., and Shapira, P. 2017. Tracking researchers and their outputs: New insights from ORCIDs, Scientometrics. DOI :10.1007/s11192-017-2473-0.

Youtie, J., Solomon, G. E. A., Carley, S., Kwon, S., Porter, A.L., 2017. Crossing borders: A citation analysis of connections between Cognitive Science and Educational Research . . . and the fields in between, Research Evaluation, 26 (3): 242-255.

Shapira, P., Kwon, S., Youtie, J. 2017. Tracking the emergence of synthetic biology. Scientometrics.

Bozeman, B., Youtie, J. 2017. Socio-economic impacts and public value of government-funded research: Lessons from four US National Science Foundation initiatives, Research Policy.

Youtie, J., Bozeman, B., Jabbehdari, S., Kao, A., 2017. Credibility and Use of Scientific and Technical Information in Policy Making: An analysis of the information bases of the National Research Council's committee reports, Research Policy 46 (1), 108-120.

Youtie, J., Shapira, P. 2016. Exploring Public Values Implications of the I-Corps Program, Journal of Technology Transfer. 1-15.

- Youtie, J., Bozeman, B. 2016. Dueling Co-Authors: How Collaborators Create and Sometimes Solve Contributorship Conflicts. *Minerva* 54(4), 375-397.
- Suominen, A., Li, Y., Youtie, J., Shapira, P. 2016. A bibliometric analysis of the development of next generation active nanotechnologies. *Journal of Nanoparticle Research*, 18(9), 270.
- Youtie, J., Porter, A.L., Huang, Y. 2016. Early Social Science Research About Big Data. *Science and Public Policy*. 44(1), 65-74.
- Huang Y, Zhang Y, Youtie J, Porter AL, Wang X. 2016. How Does National Scientific Funding Support Emerging Interdisciplinary Research: A Comparison Study of Big Data Research in the US and China. *PLoS ONE* 11(5): e0154509. doi:10.1371/journal.pone.0154509
- Li, Y., Arora, S., Youtie, J., Shapira, P. 2016. Using webmining to explore Triple Helix influences on growth in small and mid-size firms. *Technovation*.
<https://doi.org/10.1016/j.technovation.2016.01.002>
- Kwon, S., Porter, A., Youtie, J. 2016. Navigating the innovation trajectories of technology by combining specialization score analyses for publications and patents: graphene and nano-enabled drug delivery. *Scientometrics* 106(3), 1057-1071.
- Bozeman, B., Youtie, J., 2015. Trouble in Paradise: Problems in Academic Research Co-Authoring, *Science and Engineering Ethics* 22(6), 1717-1743.
- Bozeman, B., Gaughan, M., Youtie, J., Slade, C., Rimes, H., 2015. Research collaboration experiences, good and bad: Dispatches from the front lines. *Science and Public Policy*. 43(2), 226-244.
- Huang, Y., Schuehle, J., Porter, A.L., Youtie, J., 2015. A systematic method to create search strategies for emerging technologies based on the Web of Science: illustrated for 'Big Data'. *Scientometrics* 105(3), 2005-2022.
- Li, Y., Youtie, J., Shapira, P., 2015. Why do technology firms publish scientific papers? The strategic use of science by small and midsize enterprises in nanotechnology, *Journal of Technology Transfer*. 40(6), 1016-1033.
- Shapira, P., Youtie, J., Li, Y., 2015. Social science contributions compared in synthetic biology and nanotechnology. *Journal of Responsible Innovation*. 2(1), 143-148.
- Arora, S., Youtie, J., Li, Y., Shapira, P., 2015. Using the Wayback Machine to mine websites in the social sciences: A methodological resource. *Journal of the Association for Information Science and Technology*. 67(8), 1904-1915.
- Shapira, P., Youtie, J., Carley, S. 2014. Prototypes of emerging metropolitan nanodistricts in the United States and Europe. *Annals of Economics and Statistics*, Number 115/116, December 2014, 81-104.
- Kay, L., Porter, A. L., Youtie, J., Rafols, I., and Newman, N. 2014, Mapping graphene science and development: Focused research with multiple application areas. *Bulletin of the Association for Information Science and Technology*, 41 (2), p. 22-25 [Special issue on "The Future of Science Mapping"]
- Youtie, J. 2014. The use of citation speed to understand the effects of a multi-institutional science center. *Scientometrics*, 100(3), 613-621.
- Kay, L., Youtie, J., Shapira, P. 2014. Inter-industry knowledge flows and sectoral networks in the economy of Malaysia. *Knowledge Management Research and Practice*. 14(3), 280-294.
- Youtie, J., Bozeman, B. 2014. Social Dynamics of Research Collaboration: norms, practices, and ethical issues in determining co-authorship rights. *Scientometrics*, 101(2), 953-962.

- Bozeman, B., Rimes, H., Youtie, J., 2014. The evolving state-of-the-art in technology transfer research: Revising the contingent effectiveness model. *Research Policy* 44(1), 34-49.
- Tang, L., Shapira, P., Youtie, J. 2015. Is there a clubbing effect underlying Chinese research citation increases? *Journal of the Association for Information Science and Technology*. 66(9), 1923-1932.
- Kay, L., Newman, N., Youtie, J., Porter, A.L., Rafols, I. 2014. Patent Overlay Mapping: Visualizing Technological Distance. *Journal of the Association for Information Science and Technology*. 65(12), 2432-2443.
- Arora, S. K., Foley, R. W., Youtie, J., Shapira, P., Wiek, A. 2014. Drivers of technology adoption—the case of nanomaterials in building construction. *Technological Forecasting and Social Change* 87(7), 232-244.
- Youtie, J., Kay, L. 2014. Acquiring nanotechnology capabilities: role of mergers and acquisitions. *Technology Analysis & Strategic Management*, 26(5), 547-563.
- Guo, Y., Gok, A., & Youtie, J. 2014. Introduction to Special Issue on Innovative methods for innovation management and policy. *Technological Forecasting and Social Change*, 85(6), 1-3.
- Kay, L., Youtie, J., Shapira, P. 2014. Signs of Things to Come? What Patent Submissions by Small and Medium-Sized Enterprises Say About Corporate Strategies in Emerging Technologies, *Technological Forecasting & Social Change*, 85(6), 17-25.
- Arora, S. K., Youtie, J., Carley, S., Porter, A. L., Shapira, P. 2014. Measuring the development of a common scientific lexicon in nanotechnology. *Journal of Nanoparticle Research*, 16(1), 1-11.
- Youtie, J., Rogers, J., Heinze, T., Shapira, P., Tang, L. 2013. Career-based influences on scientific recognition in the United States and Europe: Longitudinal evidence from curriculum vitae data. *Research Policy*. 42 (8), 1341-1355.
- Youtie, J., Melkers, J., Kay, L. 2013. Bibliographic coupling and network analysis to assess knowledge coalescence in a research center environment. *Research Evaluation* 22 (3) 145-156.
- Arora, S. Porter, A.L., Youtie, J., Shapira, P. 2013. Capturing new developments in an emerging technology: an updated search strategy for identifying nanotechnology research outputs. *Scientometrics* 95 (1), 351-370.
- Arora, S., Youtie, J., Shapira, P., Gao, L., Ma, T. 2013, Entry Strategies in an Emerging Technology: A Cross-Country Study of Early Commercialization by Graphene Firms. *Scientometrics* 95(3), 1189-1207.
- Rogers, J.D., Youtie, J., Kay, L. 2012. Program-level assessment of research centers: Contribution of Nanoscale Science and Engineering Centers to US Nanotechnology National Initiative goals. *Research Evaluation*. 21(5), 368-380.
- Youtie, J., Hicks, D., Shapira, P., Horsley, T. 2012. Pathways from discovery to commercialisation: using web sources to track small and medium-sized enterprise strategies in emerging nanotechnologies. *Technology Analysis and Strategic Management* 24(1), 981-995.
- Pinheiro, D., Melkers, J., Youtie, J. 2012. Learning to play the game: Student publishing as an indicator of future scholarly success. *Technological Forecasting & Social Change*. 81, 56-66.
- Carley, S., Porter, A.L., Youtie, J. 2012. Toward a more precise definition of self-citation. *Scientometrics*. 94(2), 777-780.

- Huang, L., Guo, Y., Porter, A.L., Youtie, J., Robinson, D.K.R., 2012. Visualising potential innovation pathways in a workshop setting: the case of nano-enabled biosensors. *Technology Analysis & Strategic Management*. 24(5), 527-542
- Shapira, P., Youtie, J., Arora, S. 2012. Early patterns of commercial activity in graphene. *Journal of Nanoparticle Research*. 4(4), 811-826.
- Pei, R., Youtie, J., Porter, AL. 2012. Nanobiomedical science in China: a research field on the rise. *Technology Analysis and Strategic Management* 24(1), 69-88.
- Youtie, J, Shapira, P, Carley, S., Corley, E.A., Scheufele, D.A. 2011. Perceptions and actions: relationships of views on risk with citation actions of nanotechnology scientists *Research Evaluation* 20(5), 377-388.
- Shapira, P., Youtie, J., Kay, L. 2011. Building Capabilities for Innovation in SMEs: A Cross-Country Comparison of Technology Extension Policies and Programs" *International Journal of Innovation and Regional Development*, (3-4) 254-272.
- Shapira, P., Youtie, J. 2011. Nanotechnology Innovation and Policy: Current Strategies and Future Trajectories. *Journal of Technology Transfer*, 36(6), 581-586.
- Shapira, P., Youtie, J., Kay, L. 2011. National innovation systems and the globalization of nanotechnology innovation. *Journal of Technology Transfer*. 36(6), 587-604.
- Youtie, J., Porter, AL., Shapira, P., Tang, L., Benn, T. 2011. The Use of Environmental Health and Safety Research in Nanotechnology Research, *Journal of Nanoscience and Nanotechnology*, 11, 158-166.
- Youtie, J. Corley, E. 2010. Federally-Sponsored Multidisciplinary Research Centers: Learning, Evaluation, and Vicious Circles. *Evaluation and Program Planning*, 34(1), 13-20.
- Shapira, P., Youtie, J., Porter, A.L. 2010. The Emergence of Social Science Research in Nanotechnology. *Scientometrics*. 85(2), 595-611.
- Roper S., Youtie J., Shapira P. Fernandez-Ribas A, 2010. Knowledge, Capabilities and Manufacturing Innovation: A USA-Europe Comparison, *Regional Studies*, 44(3), 253-279.
- Subramanian, V, Youtie, J., Porter, AL, Shapira, P, 2010. Is there a shift to “active nanostructures”? *Journal of Nanoparticle Research*, 12(1), 1-10.
- Porter, AL, Youtie, J. 2009. Where does nanotechnology belong in the map of science? *Nature Nanotechnology*. 4, 534-536.
- Porter AL, Youtie, J. 2009. How interdisciplinary is nanotechnology? *Journal of Nanoparticle Research*, 11(5), 1023-1041.
- Shapira, P., Youtie, J. 2008. Learning to Innovate: Building Regional Technology Development Learning Networks in Midsized Cities, *European Planning Studies*, 16(9), 1207-1228.
- Youtie, J., Shapira, P. 2008. Building an innovation hub: A case study of the transformation of university roles in regional technological and economic development. *Research Policy*, 37(8), 1188-1204.
- Shapira P. and Youtie, J, 2008. Nanodistricts in the United States, *Economic Development Quarterly*, 22(3), 187-199.
- Youtie, J., Shapira, P., Porter, A.L., 2008. Nanotechnology publications and citations by leading countries and blocs, *Journal of Nanoparticle Research*, 10(6), 981-986.
- Youtie, J., Iacopetta, M, Graham, S., 2008. Assessing the Nature of Nanotechnology: Can We Uncover an Emerging General Purpose Technology? *Journal of Technology Transfer*, 33(3), 315-329.

- Porter, A.L., Youtie, J., Shapira, P., Schoeneck, D., 2008. Refining search terms for nanotechnology. *Journal of Nanoparticle Research*, 10(5), 715-728.
- Youtie, J., Shapira, P. 2008. "Mapping the Nanotechnology Enterprise: A Multi-indicator Analysis of Emerging Nanodistricts in the US South." *Journal of Technology Transfer*, 33(2), 209-223.
- Shapira, P., Youtie, J., Cheney, D., 2007. The Future of Manufacturing, *International Journal of Foresight and Innovation Policy*, 3(3) 235-239.
- Youtie, J., Shapira, P., Urmenbetova, A., Wang, J. 2007. "A brief history of the future of manufacturing: US manufacturing technology forecasts in retrospective, 1950-present" *International Journal of Foresight and Innovation Policy*. 3(3), 311-331.
- Youtie, J., Shapira, P., Laudeman, G., 2007. "Supply, Demand, and ICT-based Services: A Local Level Perspective," *Telecommunications Policy*, 31(6-7) 347-358.
- Youtie, J., Libaers, D., Bozeman, B. 2006. "Institutionalization of University Research Centers: The Case of the National Cooperative Program in Infertility Research." *Technovation*, 26(9), 1055-1063.
- Shapira, P., Youtie, J., Yogeessvaran, K, Jaafer, Z. 2006. "Knowledge Economy Measurement: Methods, Results and Insights from the Malaysian Knowledge Content Study. *Research Policy*," 35(10), 1522-1537.
- Shapira, P., Youtie, J., 2006. "Measures for knowledge-based economic development: Introducing data mining techniques to economic developers in the state of Georgia and the US South," *Technological Forecasting and Social Change*., 73(8), 950-965.
- Shapira P., Youtie, J., Mohapatra, S., 2003. "Linking Research Production and Development Outcomes at the Regional Level." *Research Evaluation*, 12(2), 105-116.
- Youtie, J. 2000. "Field of Dreams Revisited: Economic Development and Telecommunications in LaGrange, Georgia," *Economic Development Quarterly*, 14(22), 146-153.
- Shapira, P., Youtie, J. "Teaching with Internet and Multimedia Technologies." *Journal of Planning Education & Research*. 21(1), 71-83.
- Youtie, J., Bozeman, B. and Shapira, P., 1999. "Using an Evaluability Assessment to Select Methods for Evaluating State Technology Development Programs: The Case of the Georgia Research Alliance," *Evaluation and Program Planning*, 22(1), 55-64.
- Shapira, P., Youtie, J. 1998. "Evaluating Industrial Modernization: Methods, Results and Insights from the Georgia Manufacturing Extension Alliance," *Journal of Technology Transfer*, 23(1), 17-27.
- Springfield, R., and Youtie, J., 1998. "Evaluation of Industrial Modernization Programs: A Field Agent's Perspective," *Journal of Technology Transfer*, 23(1), 43-47.
- Shapira, P., Youtie, J., 1998. "Contrasting perspectives on the evaluation of industrial modernization: Introduction to the symposium" 23(1), 3-6.
- Youtie, J., Shapira, P., 1997. "Tracking Customer Progress: Measuring the Impacts of Industrial Extension," *Journal of Technology Transfer*, 22(2), 43-52.
- Shapira, P., Youtie, J., 1997. "Coordinating Industrial Modernization Services: Impacts and Insights from the U.S. Manufacturing Extension Partnership," *Journal of Technology Transfer* 22(1), 5-10.
- Shapira P, Kingsley G, Youtie J, 1997. Manufacturing partnerships: Evaluation in the context of government reform *Evaluation and Program Planning* 20(1), 103-112.
- Shapira, P., Youtie, J., Roessner, J.D., 1996. "Current Practices in the Evaluation of U.S. Industrial Modernization Programs," *Research Policy*, 25(2), 185-214.

- Youtie, J., Read, W. 1996. "Regulatory Reform and the Promise of New Telecommunications Infrastructure in New Jersey." *The Information Society*, 12(4), 425-437.
- Read, W., Youtie, J., 1995. "Telecommunications and Economic Development: Assessing Public Strategies, Industrial and Corporate Change," 4(4), 667-670.
- Read, W., Youtie, J., 1995. "Policy Strategies Along the Information Superhighway," *Review of Policy Research*, 14(1-2), 99-106.
- Read, W., Youtie, J. 1995. "LaGrange, Georgia's 'Field of Dreams': Economic Development and Telecommunications in a Rural Area" *Economic Development Review*, 13(1) 70-75.
- Read, W., Youtie, J. 1994. "Texas Telecom Corridor" *Economic Development Review*, 12(3), 27-31.
- Read, W., Youtie, J. 1993. "Public versus private enterprise: the lessons of high-tech Singapore" *Intermedia*, 21(6), 22-24.

BOOKS AND BOOK CHAPTERS

- Shapira P., Youtie J. (2017). The next production revolution and institutions for technology diffusion. In Nolan, A. (Ed). *The Next Production Revolution: Implications for Governments and Business*, (243-270). Paris: OECD
<http://dx.doi.org/10.1787/9789264271036-en>.
- Kay, L., Porter, A. L., Youtie, J., Newman, N., and Rafols, I. (2017). Visual analysis of patent data through global maps and overlays." In Lupu, M., Mayer, K., Kando, N., and Trippe, T.(Eds.), *Current Challenges in Patent Information Retrieval*. (281-295). Berlin: Springer.
- Shapira, P., Youtie, J. 2016. The impact of technology and innovation advisory services. In Edler, J., Cunningham, P., Gok, A., Shapira, P. (Eds.) *Handbook on Innovation Policy Impact* (pp. 254-306). Cheltenham: Edward Elgar.
- Shapira, P., Youtie, J. 2015. The economic contributions of nanotechnology to green and sustainable growth. In *Green Processes for Nanotechnology* (pp. 409-434). Cham Switzerland: Springer International Publishing.
- Kay, L., Youtie, J., 2013. Corporate Strategies in Emerging Technologies: The Case of Chinese Firms and Energy Storage-Related Nanotechnology Applications in: Konrad, K, Coenen, C., Dijkstra, A., Milburn, C., van Lente, H. (Eds.). 2013. *Shaping Emerging Technologies: Governance, Innovation, Discourse*. (167-184), Berlin: IOS Press / AKA.
- Randles, S., Youtie, J., Guston, D., Harthorn, B., Newfield, C., Shapira, P., Wickson, F., Rip, A., von Schomberg, R., Pidgeon, N. 2012. A Trans-Atlantic Conversation on Responsible Innovation and Responsible Governance in: Van Lente, H., Coenen, C., Fleischer, T., Konrad, K., Krabbenborg, L., Milburn, C., Thoreau, F. and Zülsdorf, T. (Eds.) *Little by Little: Expansions of Nanoscience and Emerging Technologies*. Heidelberg: Akademische Verlagsgesellschaft, 169-180.
- Youtie, J., Porter, A.L., Boyack, K., Lobo, J., Klavans, R., Rafols, I. Shapira, P. 2012. Using Large-scale Databases to Understand the Trajectories of Emerging Technologies in: Van Lente, H., Coenen, C., Fleischer, T., Konrad, K., Krabbenborg, L., Milburn, C., Thoreau, F. and Zülsdorf, T. (Eds.) *Little by Little: Expansions of Nanoscience and Emerging Technologies*. Heidelberg: Akademische Verlagsgesellschaft, 55-58.
- Youtie, J., Shapira, P. 2011. Metropolitan Development of Nanotechnology: Concentration or Dispersion? In S. Cozzens & J. Wetmore (Eds.) *The Yearbook on Nanotechnology in Society: Volume 2 Equity and Equality*. New York: Springer.

- Shapira, P., Youtie J., and S. Carley. 2011. Nanodistricts. In D. Guston & J. G. Golson (Eds.) Encyclopedia of Nanoscience and Society. Sage Publications.
- Shapira, P., Youtie, J. 2011. United States. In D. Guston & J. G. Golson (Eds.) Encyclopedia of Nanoscience and Society. Sage Publications.
- Shapira, P., Youtie, J. 2010. The Innovation System and Innovation Policy in the United States, in Rainer Frietsch and Margot Schüller (Eds.) Competing for Global Innovation Leadership: Innovation Systems and Policies in the USA, EU and Asia. Stuttgart: Fraunhofer IRB.
- Youtie, J., Shapira, P. 2007. “Innovation Strategies and Manufacturing Practices: Insights from the 2005 Georgia Manufacturing Survey” in G. Susman (ed), Small and Medium-sized Enterprises and the Global Economy. North Hampton, MA: Edward Elgar Publishing, Inc.
- Youtie, J, Shapira, P., Laudeman, G. 2004. “Reducing Barriers to User Access: The LaGrange Public Internet Initiative” in E. Bucy and J. Newhagen (ed), Media Access: Social and Psychological Dimensions of New Technology Use. Mahwah, NJ: Lawrence Erlbaum Associates. Earlier version at <http://www.cherry.gatech.edu/lagrange/publications.htm>
- Read, W., Youtie, J., 1996. Telecommunications Strategy for Economic Development, Westport, Connecticut: Praeger Publishers.
- Lipis, A.H., Marschall, T.R., Linker, J.H., Electronic Banking. New York, Wiley, 1985.
- Linker, J, 1983. Public intervenors and the public airwaves: The effect of interest groups on FCC decisions, in J.J. Havick, (ed), Communications Policy and the Political Process. Westport, Connecticut: Greenwood Press.

SPONSORED RESEARCH, GRANTS (SELECTED)

- Principal Investigator, Autonomous Systems, Expertenkommission Forschung und Innovation, Berlin, Germany (2017).
- Co-Principal Investigator. Using The ORCID ID and Emergence Scoring to Study Frontier Researchers, NSF (2015-2016).
- Social and Ethical Implications Coordinator. National Nanotechnology Coordinated Infrastructure: Southeastern Nanotechnology Infrastructure Corridor (SENIC) (2015-2020).
- Co-Principal Investigator. Forecasting Innovation Pathways of Big Data & Analytics, NSF (2014-2015).
- Co-Principal Investigator. Connections: STEM Educational Research Communities and Knowledge Transfer, NSF (2014-2016).
- Co-Principal Investigator. Credibility and Use of Scientific and Technical Information in Science: An Analysis of the Information Bases of the National Research Council's Committee Reports Policy Making, Science of Science and Innovation Policy, NSF (2014-2016).
- Consultant. Institutions for Technology Diffusion. Inter-American Development Bank (2013-2014).
- Co-Principal Investigator. Evaluation of the NIST Manufacturing Extension Partnership Program. U.S. Department of Commerce, National Institute for Standards and Technology (2011-2015).
- Co-author, Shapira, P., and Youtie, J. The Economic Contributions of Nanotechnology to Green and Sustainable Growth. March 12, 2012. Prepared for the International Symposium on

Assessing the Economic Impact of Nanotechnology, Organisation for Economic Cooperation and Development and the US National Nanotechnology Initiative, Washington DC, 27-28 March 2012.

Consultant, Evaluating the Manufacturing Extension Partnership program: Experiences and Insights, National Academies (2012)

Country Correspondent, Monitoring European Trends in Social Sciences and Humanities (METRIS), European Commission, 2011-2013.

Country Correspondent, TrendChart Integration (European innovation policy network). US innovation system assessment, European Commission, (2011-2013)

Co-Principal Investigator, Best Practices in Foreign Direct Investment and Exporting Based on Regional Industry Clusters, Economic Development Administration, 2011-2013.

Co-Principal Investigator, Research Collaboration: Social and Ethical Aspects of Contributorship, Science, Technology, and Society, National Science Foundation (2010-2013)

Principal Investigator, UK-US Collaboration Development Award (CDA), British Embassy and British Consulate (2010).

Senior researcher, Analysis of the evolution of the costs of research – trends, drivers and impacts (COST), European Commission (2009-2011)

Co-Principal Investigator, Center for Nanotechnology in Society at Arizona State University (2010-2015, senior researcher, (2005-2009)

Co-Principal Investigator, Nanotechnology's Transition from Discovery to Commercialization in Small and Medium-sized Enterprises: An Exploration of Evidence from Novel Unstructured Sources, National Nanotechnology Infrastructure Network, Social and Ethical Issues Seed Grant Competition (2009).

Co-Principal Investigator, Project on the Assessment of Fifteen Nanotechnology Science and Engineering Centers' (NSECs) Outcomes and Impacts: Their Contribution to NNI Objectives and Goals, National Science Foundation (2009-2010)

Senior Researcher Evaluating the Impact of MEP Services on Establishment Performance, NIST Manufacturing Extension Program, (2009)

Co-Principal Investigator, Mod Measurement and Analysis of Highly Creative Research in the US and Europe, Science of Science and Innovation Policy, National Science Foundation (2007-2010)

Senior researcher, Making an Impact: Assessing the Benefits of Ohio's Investments in Technology-based Economic Development Programs, Ohio Department of Development (2009)

Senior researcher, Study on Knowledge Content in Key Economic Sectors in Malaysia, U.N. Development Program (2007, 2002)

Country Correspondent, ERAWATCH (European research policy network). US research system assessment, European Commission, (2007-2013)

Country Correspondent, PROINNOWATCH, TrendChart, European Commission, (2007-2010)

Co-Principal Investigator, Technology Extension System Development for Chile, Chilean Economic Development Agency (CORFO), (2007-8)

Principal Investigator, Intellectual Capital Partnership Program, University System of Georgia, workforce studies on energy and environment (2008), aerospace (2007), logistics (2005), bioscience (2003, 2008), supply and demand of university graduates (1998, 1999, 2001, 2003);

Senior Researcher, Eureka! Winning Ways: Analysis of Early Client and Center Experiences, NIST Manufacturing Extension Partnership, (2008)

Co-Director, Correlates of Innovation Activity and Performance: A US-Europe Comparison, NIST Manufacturing Extension Partnership, (2008)

Co-Director, Product and Service Innovation, NIST Manufacturing Extension Partnership, (2006)

Co-Director, Knowledge Mapping of Nanotechnology in the Southern United States, Southern Technology Council (2005).

Co-Director, Georgia Manufacturing Survey (2010, 2008, 2005, 2002, 1999, 1996, 1994)

Senior Researcher, Assessing the Value of Information and its Impact on Productivity in Small and Midsize Manufacturers, Advanced Technology and the Future of US Manufacturing, NIST Manufacturing Extension Partnership (2004)

Senior Researcher, NICHD Research Centers/Network Program Review: National Cooperative Program for Infertility Research, National Institutes of Health (2003-2004).

Co-Principal Investigator, Impacts of Public Information Infrastructure Access, evaluation involving surveys, case studies, National Science Foundation (2001-2004).

Co-Principal Investigator, Special Studies and Analysis, Manufacturing Futures Group, National Institute of Standards and Technology (2003-2004), involving technology futures workshop, pilot protocol examining role of information in productivity, product and services innovation.

Director, bibliometric analysis of the nanotechnology industry for the Georgia Research Alliance (2004)

Principal Investigator, cluster analysis of electronic chip design industries for the Georgia Department of Economic Development (2001-2002)

Principal Investigator, technology infusion project, to benchmark technology development programs in U.S. states for the Georgia Department of Economic Development, (2000).

Principal Investigator, Mid-sized Cities Technology Development project, to enhance technology-based economic development activities in mid-sized cities in Georgia, develop a European network of mid-sized cities, and organize workshops for the Georgia Department of Economic Development (2001-2003)

Senior researcher, Contractor Change at the Department of Energy's Multi-program Laboratories, involving focus groups, case studies, Office of Science, Department of Energy, (2001).

Co-Principal Investigator, Impacts of Public Information Infrastructure Access, Science, Technology and Society, National Science Foundation (2001-2003).

Principal Investigator, Innovative Local Economic Development Programs, involving 25 case studies, U.S. Economic Development Administration (1998-1999).

Principal, case study evaluations of the Manufacturing Extension Partnership program, successful projects (1997), exemplary projects (1998), third party partnerships (1998), transformed firms, NIST Manufacturing Extension Partnership (1999).

Senior Researcher, Ring Around Georgia, NTIA/Department of Commerce

Project Director, Manufacturing Assistance Program Needs Assessment Guide, Aspen Institute (1994-1995)

COURSES TAUGHT

Bibliometrics, Citation Analysis, and Tech Mining
Economic Development Analysis and Practice
Economic Development Policy and Planning
The Geography of Innovation
Economic Development Workshop
Planning for Climate Change
Climate Change Planning Studio

SERVICE, HONORS, AWARDS

- Recognition
 - Thank a Teacher Program, Center for Teaching and Learning, Georgia Institute of Technology, 2016
 - Top 30 authors in technology and innovation management, International Association of Management of Technology, 2014
 - Peer Recognition Award, Enterprise Innovation Institute, 2007
 - Journal of Technology Transfer, Lang Rosen Gold Award for best paper, 1997, 1998
- Visiting positions and directorships
 - Visiting Professor, Beijing Institute of Technology, China
 - Honorary Research Fellow, Manchester Institute of Innovation Research, UK 2013-2016.
 - Fellow, Center for Organization Research and Design (CORD), Arizona State University
 - Visiting Scholar, Atlanta Census Research Data Center, 2013-2015.
 - Co-Director, Innovation Co-Lab – Georgia Institute of Technology (US), the University of Manchester (UK), and Beijing Institute of Technology (China)
- Scientific and Program Committees
 - National Science Foundation, Science of Science and Innovation Policy (SciSIP) advisory panel, 2013-2014
 - European Forum for Studies of Policies for Research and Innovation (EU-SPRI), Scientific Committee, 2014, 2015, 2016.
 - Society for Nanotechnology and Emerging Technologies, Program Committee 2011, 2012.
 - Atlanta Conference on Science and Innovation Policy 2009, 2011, 2013, 2015.
 - Global Tech Mining, 2013, 2014, 2015, 2016.
 - International Conference on Innovative Methods for Innovation Management and Policy, 2012.
- Organisation for Economic Cooperation and Development, Paris, France, The Next Production Revolution (with Philip Shapira), 2017.
- Expert providing input to GAO-16-659SP Data and Analytics Innovation: Emerging Opportunities and Challenges, Government Accountability Office, 2016, <http://www.gao.gov/assets/680/679903.pdf>
- Expert providing input to Bibliometric Indicators, National Science Foundation, 2016.
- Expert providing input to Innovation Surveys, National Science Foundation, 2015.

- Expert providing input to President's Council of Advisors on Science and Technology (PCAST) Report to the President and Congress on the Fifth Assessment of the National Nanotechnology Initiative, March 2014.
- Inter-American Development Bank, Institutions for Technology Diffusion, 2015.
- Expert providing input to President's Council of Advisors on Science and Technology (PCAST) Report to the President and Congress on the Fourth Assessment of the National Nanotechnology Initiative, April 2012.
- Advanced Manufacturing Partnership, Policy Workstream, 2011-2012 and expert providing input to President's Council of Advisors on Science and Technology (PCAST) Report Capturing Domestic Competitive Advantage in Advanced Manufacturing, July 2012.
- Consultant, National Academy of Sciences, 21st Century Manufacturing: The Role of the Manufacturing Extension Partnership Program of the National Institute of Standards and Technology, 2013.
- Organisation for Economic Cooperation and Development, Paris, France, OECD/NNI International Symposium on Assessing the Economic Impact of Nanotechnology Background Paper 3: The Economic Contributions of Nanotechnology to Green and Sustainable Growth (with Philip Shapira), 2012.
- Journals
 - Editorial Board
 - Science and Public Policy
 - Journal of Technology Transfer
 - Journal of Data and Information Science
 - Reviewer
 - Journal of Technology Transfer, Issue co-editor (2008, 2011)
 - International Journal of Foresight and Innovation Policy
 - International Journal of Innovation and Technology Management
 - International Journal of Knowledge Management Studies
 - International Journal of Manufacturing Technology and Management
 - Science and Public Policy Journal
 - Telecommunications Policy
 - R&D Management
 - Economic Development Quarterly
 - Evaluation and Program Planning
 - Research Policy
 - Research Evaluation
 - Foresight
 - Scientometrics
 - Technology Analysis & Strategic Management
 - Technology Forecasting & Social Change
 - Journal of Nanoparticle Research
 - Translational Materials Research
- NSF-CAREER Proposal reviewer, 2002, 2009
- National Research Council reviewer 2012, 2013
- External panel member, Wyoming IDeA Networks for Biomedical Excellence (INBRE) Program 2010, 2012, 2013.

- Member, Manufacturing Extension Partnership Program Evaluation Review Committee (2005-2006), Center Panel Reviews (1998), Evaluation Working Group (1993-1999)
- Sloan Foundation Industry Studies Affiliate (2005-2010)
- Working group member, National Innovations Initiative, Council on Competitiveness (2004).
- Special assistant to Governor's task force on technology and telecommunications (2003), natural gas deregulation (2001-2002).
- Director, Telecommunications/Technology technical advisory committee, Georgia Rural Development Council (2000).
- Co-organization, Innovations in Economic Development Forum, (2004-2011).
- Co-organization, Transatlantic Workshop on Nanotechnology Innovation and Policy (2010)
- Co-organization, workshops on Telecommunications, Rural Georgia, and the New Economy, sponsor: Georgia Department of Community Affairs (1999-2000);
- Co-organization, Atlanta Workshops on the Evaluation of Industrial Modernization, Aberdeen Woods, GA, 1993, 1994, 1996, 1997.