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Academic Positions:

Stephen M. Ross School of Business, University of Michigan
Assistant Professor of Strategy (July 2002 to present)

The Wharton School, University of Pennsylvania
Senior Fellow: Mack Center for Technological Innovation (July 1999 to present)
Lecturer: Management Department and Business and Public Policy Department
(July 1999 to June 2002)

Education:

University of California, Berkeley, Haas School of Business
Ph.D., Business and Public Policy Program (May 2001).

Dissertation Title: The Commercialization of University Technology:
Implications for Firm Strategy and Public Policy

Awarded Prize for *Best Dissertation in Technology Management*,
Institute for Operations Research and the Management Sciences
(INFORMS), 2003.

Dissertation Committee: David C. Mowery, Chair
John Freeman
Bronwyn H. Hall
Richard R. Nelson
Brian Wright

University of California, Berkeley, Haas School of Business, MBA (1988)
Beta Gamma Sigma honorary society

University of California, Berkeley, MS Structural Engineering (1982)

Purdue University, BS Civil Engineering (1981)

Published Journal Articles:

"Real Options in Technology Licensing," *Management Science*, 53(10): 1618-1633, 2007.

"Academic Patents and Materials Transfer Agreements: Substitutes or Complements?" with
David C. Mowery, *Journal of Technology Transfer* 32(3): 157-172, 2007.

"Overoptimism and the Performance of Entrepreneurial Firms," with Robert A. Lowe,
Management Science 52(2): 173-186, 2006.

"Changes in University Patent Quality after the Bayh-Dole Act: A Re-Examination," with David C. Mowery and Bhaven N. Sampat, *International Journal of Industrial Organization* 21(9): 1371-1390, 2003.

Reprinted in Technological Entrepreneurship: Institutions and Agents Involved in University Technology Transfer, Donald Siegel, ed., (Edward Elgar Publishing, Ltd.: Northampton, MA) 2006.

Reprinted in The Economics of Patents, John Cantwell, ed., (Edward Elgar Publishing, Inc.: Northampton, MA) 2006.

"Learning to Patent: Institutional Experience, Learning, and the Characteristics of University Patents After Bayh-Dole, 1980-1994," with David C. Mowery and Bhaven N. Sampat, *Management Science* 48(1): 73-89, 2002.

"Academic Patent Quality and Quantity Before and After the Bayh-Dole Act in the United States," with David C. Mowery, *Research Policy* 31(3): 399-418, 2002.

"The Growth of Patenting and Licensing by U.S. Universities: An Assessment of the Effects of the Bayh-Dole Act of 1980," with David C. Mowery, Richard R. Nelson, and Bhaven N. Sampat, *Research Policy* 30(1): 99-119, 2001.

Reprinted in The Economics of Innovation Policy, A.N. Link, ed., (Edward Elgar Publishing, Ltd.: Northampton, MA), forthcoming.

"The Commercialization of National Lab Technology through the Formation of Spinoff Firms: Evidence from Lawrence Livermore National Laboratory" with David C. Mowery, *International Journal of Manufacturing Technology and Management* 3(1): 106-119, 2001.

"Market Failure or Market Magic? National Innovation Systems and the Transfer of Technology" with David C. Mowery, *Science Technology Industry Review* 22: 101-136, 1998.

Published Books:

Ivory Tower and Industrial Innovation, with David C. Mowery, Richard R. Nelson, Bhaven N. Sampat, (Stanford University Press: Palo Alto, CA) 2004.

Published Book Chapters:

"Deferral and Growth Options under Sequential Innovation," with Michael J. Leiblein, Advances in Strategic Management, Volume 24, Real Options Theory, Jeffrey J. Reuer and Tony W. Tong, eds., (Elsevier Ltd.: Amsterdam) 2007.

"The Geographic Reach of Market and Nonmarket Channels of Technology Transfer: Comparing Citations and Licenses of University Patents," with David C. Mowery in Globalization and the Location of Firms, John Cantwell, ed., (Edward Elgar Publishing, Inc.: Northampton, MA) 2004.

"Patent Citations and the Economic Value of Patents: A Preliminary Assessment" with Bhaven N. Sampat in Handbook of Quantitative Science and Technology Research, Henk Moed, Wolfgang Glänzel, and Ulrich Schmoch, eds., (Kluwer Academic Publishers: London) 2004.

"Numbers, Quality, and Entry: How has the Bayh-Dole Act Affected US University Patenting and Licensing?" with David C. Mowery in Innovation Policy and the Economy, Volume 1," Adam Jaffe, Josh Lerner and Scott Stern, eds., (MIT Press: Cambridge, MA) 2001.

"The Effects of the Bayh-Dole Act on U. S. University Research and Technology Transfer: An Analysis of Data from Columbia University, the University of California, and Stanford University," with David C. Mowery, Richard R. Nelson, and Bhaven Sampat, in Industrializing Knowledge: University-Industry Linkages in Japan and the United States, Lewis M. Branscomb, Fumio Kodama, and Richard Florida eds., (MIT Press: Cambridge, MA) 1999.

Published Book Reviews:

MIT and the Rise of Entrepreneurial Science, by Henry Etzkowitz, *Research Policy* 33: 177-178.

Papers Under Review:

"Research Consortia as Performers and Brokers of R&D: Tradeoffs for Member Firms," with Rosemarie H. Ziedonis, invited to resubmit to *Organization Science*

"The Geographic Reach of Market and Nonmarket Channels of Technology Transfer: Comparing Citations and Licenses of University Patents," with David C. Mowery, invited to resubmit to the *Journal of Industrial Economics*

Working Papers:

"Licensing University Inventions to Start-Up and Established Firms," with Brent Goldfarb and Rachelle Sampson

"Deferral and Growth Options under Sequential Innovation: Evidence from Semiconductor Manufacturing," with Michael Leiblein

"Cite-Seeing: Patent Citations and the Economic Value of Patents," with Bhaven N. Sampat

Research in Progress:

Survey on University-Industry Technology Exchange, with Robert A. Lowe

University Intellectual Ownership Policy and the Dynamics of Technology Entrepreneurship, with Martin Kenney and Anne Miner

Real Option Value of Patents: Distinguishing Between Technological and Strategic Uncertainty, with Rosemarie Ziedonis

Research Consortia and the Inventive Activities of Technology Suppliers, with Rosemarie Ziedonis

Invited Presentations:

"The Geographic Reach of Market and Nonmarket Channels of Technology Transfer: Comparing Citations and Licenses of University Patents," University of Wisconsin, November 2007.

"The Geographic Reach of Market and Nonmarket Channels of Technology Transfer: Comparing Citations and Licenses of University Patents," Stanford University, November 2007.

"Deferral and Growth Options under Sequential Innovation," Strategic Management Society Annual Meeting, October 2007, San Diego, CA.

"Licensing University Inventions to Start-Up and Established Firms," Academy of Management Annual Meeting, August 2007, Philadelphia, PA.

"Deferral and Growth Options under Sequential Innovation," Atlanta Competitive Advantage Conference, June 2007, Atlanta, GA.

"Licensing University Inventions to Start-Up and Established Firms," Conference on Entrepreneurship and Institutions, University of Wisconsin, May 2007.

"Real Options in Technology Licensing," University of Southern California, October 2006.

"Deferral and Growth Options under Sequential Innovation," Conference for Real Options in Entrepreneurship and Strategy, University of North Carolina, June 2006.

"Research Consortia as Performers and Brokers of R&D: Tradeoffs for Member Firms," Roundtable for Engineering Entrepreneurship Research, Georgia Institute of Technology, December 2005.

"Real Options in Technology Licensing," University of Illinois, October 2005.

"Collaborative Institutions and the Diffusion of Technological Knowledge: The Differential Diffusion," with Brian Silverman and Rosemarie H. Ziedonis, Academy of Management Annual Meeting, August 2005, Honolulu, HI.

"Academic Patents and Material Transfer Agreements: Substitutes or Complements?" with David C. Mowery, Western Economic Association, July 2005, San Francisco, CA.

"Academic Patents and Material Transfer Agreements: Substitutes or Complements?" with David C. Mowery, Conference on Bringing Science to Life, Institute for International Business, University of Toronto, April 2005, Toronto, Canada.

"Overoptimism and the Performance of Entrepreneurial Firms," Purdue University, March 2005.

"Real Options in Technology Licensing," Harvard Business School Conference on Entrepreneurship and Innovation, December 2004, Boston MA.

"Learning and Exercise Choice in Technology Options Contracts," Berkeley-Stanford-Michigan Mini-Conference on University-Industry Interfaces, November 2004, Stanford CA.

"Real Options in Technology Licensing," Harvard Business School Strategy Conference, October 2004, Boston MA.

"Overoptimism and the Performance of Entrepreneurial Firms," Conference for the *Management Science* Focused Issue on Entrepreneurship, Case Western Reserve University, October 2004, Cleveland OH.

"Start-Ups, Established Firms, and the Commercialization of University Inventions," with Robert A. Lowe, Roundtable on Engineering Entrepreneurship Research, Georgia Institute of Technology, November, 2003.

"Start-Ups, Established Firms, and the Commercialization of University Inventions," Organization Science Fall Conference on Industrial Coordination, October 2003, Philadelphia, PA.

"Research Consortia and the Diffusion of Technological Knowledge: Insights from SEMATECH," Organization Science Fall Conference on Industrial Coordination, October 2003, Philadelphia, PA.

"Start-Ups, Established Firms, and the Commercialization of University Inventions," INFORMS Annual Meeting, October 2003, Atlanta, GA.

"Learning and Exercise Choice in Real Options Contracts," Academy of Management Annual Meeting, August 2003, Seattle WA.

"Cite-Seeing: Patent Citations and the Economic Value of Patents," Conference on Empirical Economics of Innovation and Patenting, Centre for European Economic Research, March 2003, Mannheim Germany.

"Changes in University Patent Quality After the Bayh-Dole Act: A Re-Examination," Intellectual Property Workshop, University of Michigan Law School, January 2003.

"Changes in University Patent Quality After the Bayh-Dole Act: A Re-Examination," Conference on the Economics of Intellectual Property at Universities, University of North Carolina, Greensboro, November 2002.

"Real Options in Technology Acquisition," Interdisciplinary Committee on Organizational Studies Seminar, University of Michigan, September 2002.

"The Geographic Distribution of Economic Benefits of Patenting and Licensing of University Developed Technologies," Conference on "The Economics of Science and Engineering at the Industry-University Interface," University of California, Berkeley, July 2002.

"The Geographic Reach of Market and Non-Market Channels of Technology Transfer: Comparing Citations and Licenses of University Patents," Conference on Linkages between Academic Research and Industrial Innovation in Multinational Companies, University of Reading, September 2001.

"Diffusion of Research from SEMATECH: Evidence from Patent Citations," Academy of Management Annual Meeting, August 2001, Washington DC.

"Learning to Patent: Institutional Experience, Learning, and the Characteristics of University Patents After Bayh-Dole, 1980-1994," Roundtable on Engineering Entrepreneurship Research, Georgia Institute of Technology, December 2000.

"Commercialization of University Technology: Implications for Firm Strategy and Public Policy," George Washington University, September 2000.

"Patent Characteristics and the Value of University Patents," Academy of Management Annual Meeting, August 2000, Toronto Canada.

"The Geographic Reach of Market and Non-Market Channels of Technology Transfer: Comparing Citations and Licenses of University Patents," University of Maryland Entrepreneurship Conference, May 2000.

"Numbers, Quality, and Entry: How has the Bayh-Dole Act Affected US University Patenting and Licensing?" National Bureau of Economic Research, Conference on Innovation Policy and the Economy, April 2000, Washington DC.

"The Influence of Knowledge Assets on the External Technology Licensing Decision," Strategic Management Society Annual Meeting, October 1999, Berlin Germany.

"The Effects of the Bayh-Dole Act on U.S. University Research and Technology Transfer: An Analysis of Data from the University of California and Stanford University," Academy of Management Annual Meeting, August 1999, Chicago IL.

"The Effects of the Bayh-Dole Act on U.S. University Research and Technology Transfer: An Analysis of Data from the University of California and Stanford University," National Bureau of Economic Research, Science and Technology Policy Program Summer Institute, July 1999, Cambridge MA.

"The Valuation of Technology Licensing by Real Options," Conference on Intangibles: Management, Measurement, and Organization, New York University, May 1999.

"Numbers, Quality, and Incumbency: Another Look at the Effects of Bayh-Dole on University Patenting and Licensing," with David C. Mowery, American Economics Association Annual Meeting, January 1999, New York NY.

"The Effects of the Bayh-Dole Act on U. S. University Research and Technology Transfer: An Analysis of Data from Columbia University, the University of California, and Stanford University," Conference on the U.S. and Japanese Research Systems, September 1998, Kennedy School of Government, Harvard University.

"Influences on University Licensees' Strategy and Performance," Conference on University-Industry Research Relationships, August 1998, University of California, Berkeley.

"The Effects of Bayh-Dole on University Invention, Patenting, and Licensing," May 1998, Science Policy Research Institute, University of Sussex.

"Patent Characteristics as Measures of the Value of University Patents," National Bureau of Economic Research Conference on the Patent System and Innovation, March 1998, Cambridge MA.

"The Effects of Bayh-Dole on University Invention, Patenting, and Licensing," Biotechnology and the Law Conference, February 1998, Conference on Biotechnology and the Law, University of California, Berkeley.

Conferences and Panels:

Discussant, Panel on the Economics of Intellectual Property, NBER Summer Institute, July 2007, Boston, MA.

Invited Participant, Kauffman-Planck Annual Summit on Entrepreneurship Research and Policy, July 2007, Dana Point, CA.

Discussant, Consortium on Competitiveness and Cooperation Conference, Georgia Institute of Technology, April 2007.

Discussant, Conference for Real Options in Entrepreneurship and Strategy, University of North Carolina, June 2006.

Invited Panelist, Conference on Patent Law and Innovation in the Life Sciences, Harvard Law School, December 2005.

Discussant, "Commercializing Cohen-Boyer 1980-1997," Roundtable for Engineering Entrepreneurship Research, December 2005.

Discussant, "Contractual Design of Technology Alliances," Academy of Management Annual Meeting, August 2005, Honolulu HI.

Discussant, "Knowledge Flows," Academy of Management Annual Meeting, August 2005, Honolulu HI.

Discussant, "Bringing Science to Life," Institute for International Business, University of Toronto, April 2005, Toronto, Canada.

Discussant, National Bureau of Economic Research Conference on Academic Science and Entrepreneurship, Santa Fe NM, April 2005.

Invited Panelist, Roundtable on a Global Model for Commercialization of Academic Research, Copenhagen, Denmark, January 2005.

Discussant, Roundtable for Engineering Entrepreneurship Research, Georgia Institute of Technology, December 2004.

Discussant, Uncertain Property Rights and Incomplete Contracting, International Society for New Institutional Economics 2004 Annual Meeting, Tucson AZ.

Discussant, "Firms and Academic Institutions: Interactions in Knowledge Creation and Commercialization," International Society for New Institutional Economics 2004 Annual Meeting, Tucson AZ.

Discussant, "Public Private Linkage and Innovation Outcomes," Academy of Management Annual Meeting, August 2004, New Orleans LA.

Discussant, Roundtable for Engineering Entrepreneurship Research, Georgia Institute of Technology, November 2003, Atlanta GA.

Discussant, National Bureau of Economic Research Productivity Meeting, December 2002, Cambridge MA.

Discussant, Roundtable on Engineering Entrepreneurship Research, Georgia Institute of Technology, March 2002.

Invited Participant, Winter Strategy Conference, March 2002, Brigham Young University – University of Utah, Salt Lake City UT.

Discussant, “University Technology Transfer and Entrepreneurship,” Academy of Management Annual Meeting, August 2001, Washington DC.

Co-Chair, “The Shifting Landscape for Commercializing Research,” Academy of Management, Annual Meeting, August 2000, Toronto, Canada.

Co-Organizer, Conference on Organizational Issues in University Technology Transfer, June 2000, Purdue University, West Lafayette IN.

Chair, “Technology and Location, Location, and Location,” Association for Public Policy Analysis and Management Research Conference, November 1999, Washington DC.

Co-Chair, “Universities as a Source of New Technology,” Academy of Management Annual Meeting, August 1999, Chicago IL.

Editorial and Reviews:

Advisory Editor, *Research Policy*

Co-Editor for Special Issues on Organizational Issues in University Technology Transfer, *Journal of Technology Transfer* 26(1,2) 2001.

Reviewer for *Academy of Management Review*, *American Economic Review*, *California Management Review*, *Economics of Innovation and New Technology*, *Industrial and Corporate Change*, *Journal of Law, Economics, and Organization*, *Management Science*, National Science Foundation, *Organization Science*, and *Strategic Management Journal*.

Dissertation Committees:

David Leibsohn, Business Economics and Public Policy, University of Michigan
“Looking Beyond Entry to Foreign Market Development and Performance:
Evidence from the International Operations of US Fast-Food Chains”

Michael Troilo, Business Economics and Public Policy, University of Michigan
“Essays in International Entrepreneurship: Institutions and Entrepreneurial Activity”

Frederick Lehmann, Business Economics and Public Policy, University of Michigan
“Three Essays on Entrepreneurship: Reassessing Puzzles and Assumptions”

Puay Khoon Toh, Strategy, University of Michigan
“Structure-Scope Matching: A Study of the Interrelationship between Organization
Structure and Innovation in the Communications Industry”

Teaching Experience:

Assistant Professor, Stephen M. Ross School of Business, University of Michigan

STRAT (formerly CSIB) 601, Corporate Strategy (MBA), Fall 2003, Winter 2005, Winter 2006, Winter 2007

CSIB 647, Strategy for Technology Commercialization (MBA), Fall 2003, Winter 2006
(Developed new course)

CSIB 897 and 898, Technology Dynamics and Firm Strategy (PhD), Spring 2003.

Multidisciplinary Action Projects (MBA), Spring 2003.

STRAT (formerly CSIB) 673, Strategy, Innovation, and Technology Management (MBA),
Fall 2002, Winter 2007.

Lecturer, The Wharton School, University of Pennsylvania

MGMT 711, Competitive Strategy and Industrial Structure (MBA), Spring 2001, 2002.

PPMT 203, Business Policy and the Global Political Environment (Undergraduate), Fall
2000, 2001, Spring 2002.

MGMT 653, Field Application Project (MBA), Spring 2000, 2001.

MGMT 802, Innovation, Change, and Entrepreneurial Management (MBA), Spring 2000.

Graduate Student Instructor, Haas School of Business, University of California, Berkeley

BA110, Microeconomics (undergraduate), Summer 1999, Summer 1998, Summer 1997,
Summer 1996.

BA 170, The Economic, Political, and International Environment of Business
(undergraduate), Fall 1997, Spring 1996.

BA188, International Business (undergraduate), Fall 1994.

E204, Quantitative Analysis for Business Decisions (MBA), Fall 1995.

Fellowships and Research Funding:

Office of the Vice President for Research, University of Michigan, 2004-2007
William and Phyllis Mack Center for Technological Innovation Research Grants, The
Wharton School, University of Pennsylvania, 1999-2006.
California Policy Research Center Grant, 1995-1996.
Sasakawa Peace Foundation Fellowship, 1993-1994.

Business Experience:

D. Russell Associates (Specialty Engineering Firm), Point Richmond, CA (1991)
Business Development Manager

Pacific Gas and Electric Company, San Francisco, CA (1985-1991)
Business Planner, Engineering and Construction Business Unit
Corporate Planning Analyst, Strategic Planning Department
Responsible Engineer, Hydroelectric Power

Bechtel Power Company, San Francisco, CA (1983-1985)
Engineer

Currently Licensed as a Professional Civil Engineer in California, #C39002

University and Professional Service:

Representative-at-Large, Entrepreneurship and Strategy Interest Group, Strategic Management Society, 2007-2008.

Member, Program Review Committee, Competitive Strategy Interest Group, Strategic Management Society October 2007 Annual Meeting, San Diego, CA.

Co-Organizer, Technology and Innovation Management Division Doctoral Consortium, Academy of Management, August 2007 Annual Meeting, Philadelphia, PA.

Member, Steering Committee; Science, Technology, and Public Policy program at the Gerald R. Ford School of Public Policy, University of Michigan, 2006-2007.

Co-Organizer, Technology and Innovation Management Division Doctoral Consortium, Academy of Management, August 2006 Annual Meeting, Atlanta, GA.

Outstanding Reviewer Award, Business Policy and Strategy Division, Academy of Management, 2005.

Member, Executive Committee, Technology and Innovation Management Division, Academy of Management, 2005-2007.

Member, Research Committee, Business Policy and Strategy Division, Academy of Management, 2005-2006.

Panelist, Professional Development Workshop on "Methodologies for Research on Knowledge Flows using Patent and Non-Patent Data," Academy of Management, August 2005 Annual Meeting, Honolulu, HI.

Member, INFORMS Technology Management Section Dissertation Award Committee, 2005.

Faculty Leader, Technology and Innovation Management Division Junior Faculty Consortium, Academy of Management Annual Meeting, August 2004, New Orleans, LA.

Panelist, Professional Development Workshop on "Uses and Abuses of Patent Data," Academy of Management, August 2003 Annual Meeting, Seattle, WA.

Member, University Council (University of Pennsylvania), 2000-2001.

Media Mention:

New York Times "Patents" Column, March 2, 1998.

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