

## CURRICULUM VITAE

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### **Education**

University of Chicago, Ph.D. (Economics) 1991  
University of Chicago, M.A. (Economics) 1988  
University of Sarajevo, B.A. (Economics) 1981

### **Positions**

Professor, Simon Fraser University, Department of Economics, 2002 - present  
Associate Professor, Simon Fraser University, Department of Economics, 1997 -  
2002  
Assistant Professor, Simon Fraser University, Department of Economics, 1993-1997  
Assistant Professor, McGill University, Department of Economics, 1990-1993

### **Visiting Positions**

California Institute of Technology, September 2002 - present, Research Associate  
Federal Reserve Bank of St. Louis, Visiting Scholar, December 1991, December  
2003, August 2005.  
ERMES, University Pantheon-Assas (Paris II), Visiting Scholar, 2001 - 2005  
Lecturer at the Third Trento Summer School in "Adaptive Economic Dynamics",  
organized by Peter Howitt, July 1 - 12, 2002.  
European Central Bank, December 1999, Visiting Researcher  
International Monetary Fund, Research Department, August 1999, Visiting Scholar  
University of Amsterdam, Center for Nonlinear Dynamics in Economics and  
Finance, May/June 1999, Visiting Scholar  
International Monetary Fund, Research Department, April 1999, Visiting Scholar.  
Pompeu Fabra University, September - December 1998, Visiting Scholar

Santa Fe Institute, May 1998, Visiting Scholar

University of Southern California, Fall 1996, Visiting Assistant Professor

### **Other Professional Activities**

Director, *Centre for Research on Adaptive Behaviour in Economics*, CRABE, Department of Economics, Simon Fraser University, <http://www.sfu.ca/crabe>

Director, *Turing Tournament* <http://turing.ssel.caltech.edu>, California Institute of Technology.

Associate Member, *Behavioural Ecology Research Group*, Simon Fraser University.

Associate Editor, *Macroeconomic Dynamics*, since October 2004.

### **Publications**

#### **A. Refereed Articles**

“Call Market Book Information and Efficiency”, *Journal of Economic Dynamics and Control*, forthcoming.

“Social vs. Individual Learning - What Makes a Difference?” (with Michael Maschek), *Computational Economics*, forthcoming.

“An Initial Impementation of the Turing Tournament to Learning in Two Person Repeated Games”, joint with R. McKelvey and S. Pevnitskaya, *Games and Economic Behavior*, 57, 93-122, 2006.

“Heterogeneity and Evolution of Expectations in a Model of Currency Crisis”, joint with P. Masson, *Nonlinear Dynamics, Psychology and Life Sciences*, 8, 231-258, 2004.

“Scaling Up Learning Models in Public Good Games”, joint with J. Ledyard, *Journal of Public Economic Theory*, 6, 205 - 238, 2004.

“The Implementation of the Turing Tournament: A Report”, *Proceedings of the 8th Annual Workshop on Economics with Heterogenous Interacting Agents*, 2004.

“Information and Dynamics: Sequences of Call Markets”, joint with J. Ledyard, *Information Systems and Frontiers*, 5, 39-47, 2003.

“Evolutionary Dynamics of the Transitions Across the Nash equilibria of a Tacit Coordination Game”, *European Journal of Economic and Social Systems*, 15, 109-129, 2002.

“Evolutionary Dynamics of Currency Substitution”, *Journal of Economic Dynamics and Control*, 25, 2001, 395-417.

“Using Genetic Algorithm to Select Architecture of a Feedforward Neural Network”, joint with R. Gencay, *Physica A*, 289, 2001, 574-594.

- “Performance of Rational and Adaptive Agents in the Environment with Persistent Fluctuations of the Exchange Rate”, *Macroeconomic Dynamics*, 5, 2001, 204-224.
- “Statistical Properties of Genetic Algorithm Learning in Macroeconomic Models”, joint with R. Gencay, *Journal of Economic Dynamics and Control*, 24, 2000: 981-1005.
- “Inflationary Deficit Financing in an Open Economy: Evolutionary Dynamics”, *The Santa Fe Institute Working Papers Series* 99-05-038, 1999.
- “Evolution of Communication in a Sender/Receiver Game of Common Interest with Cheap Talk”, joint with C. Eaton, *Journal of Economic Dynamics and Control*, 22, 1998, 1187-1207.
- “Stability of Equilibria under Genetic Algorithm Adaptation: an Analysis”, *Macroeconomic Dynamics* 2: 1-22, 1998.
- “The Transition from Stagnation to Growth: An Adaptive Learning Approach”, joint with J. Bullard and J. Duffy, *Journal of Economic Growth* 2:185-209, 1997.
- “The Behavior of the Exchange Rate in the Genetic Algorithm and Experimental Economies”, *Journal of Political Economy* 104:510-541, 1996.
- “Drift and Selective Imitation”, joint with C. Eaton and B. Morrison, *Proceedings of the Second International Conference on Evolutionary Programming*, San Diego CA, February 1996.
- “Genetic Algorithms and Inflationary Economies”, *Journal of Monetary Economics* 36: 219-243, 1995.
- “Coordination via Genetic Learning”, joint with C. Eaton, *Computational Economics* 8: 181-203, 1995.
- “Genetic Algorithm and the Cobweb Model”, *Journal of Economic Dynamics and Control* 18: 3-28, 1994.

## **B. Book Chapters**

- “Laboratory Experiments with an Expectational Phillips Curve”, joint with T.J. Sargent in: D. Altig and B. Smith (eds.), *The Origins and Evolution of Central Banking*: Volume to inaugurate the Institute on Central Banking of the Federal Reserve Bank of Cleveland, to be published by Cambridge University Press, 2003, pp 23 - 56.
- “Exchange Rate Volatility in the Artificial Foreign Exchange Market”: in S.H. Chen (ed.), *Evolutionary Computation in Economics and Finance*, Springer-Verlag.
- “Strategic Uncertainty and the Genetic Algorithm Adaptation” in: H. Amman, B. Rustem and A. Whinston (eds.), *Advances in Computational Economics*, Kluwer Publishers, 1996.

## **C. Surveys**

- “The Use of Evolutionary Models in Macroeconomic Environments”, *Macroeconomic Dynamics*, 4, 373-414, 2000.

## **D. Manuscripts and Work in Progress**

- “Currency Crisis: Evolution of Beliefs, Experiments with Human Subjects and Real World Data ”, joint with M. Maschek, revisions done for the *Journal of Economic Behavior and Organization*.
- “Computer Testbeds and Mechanism Design: Application to the Class of Groves Ledyard Mechanisms for Provision of Public Goods”, joint with J. Ledyard, under consideration
- “Social Learning and Monetary Policy Rules”, joint with J. Bullard and O. Kostyshyna, manuscript, October, 2006.
- “Optimal Cheating in Monetary Policy with Individual Evolutionary Learning”, joint with O. Kostyshyna, manuscript, May 2006.
- “Learning in Principal-Agent Models”, joint with A. Karaivanov, manuscript, October 2006.
- “Evolution of Organizational Decisions”, joint with G. Ballot and M. Maschek, manuscript, November 2005.
- “Evolutionary Dynamics in Macroeconomic Models”, monograph, Cambridge University Press, forthcoming.
- “The Turing Tournament: A Method for Evaluating Social Science Theories”, joint with R. McKelvey, March 2003, manuscript.
- “Learning in a Double Auction Trading Mechanism”, joint with J. Ledyard, work in progress.

## **Referee Work**

*American Economic Review, Canadian Journal of Economics, Computational Economics, Econometrica, Journal of Economic Behavior and Organization, Journal of Economic Dynamics and Control, Journal of Economic Surveys, Journal of Evolutionary Economics, Journal of International Economics, Journal of Money, Credit and Banking, Journal of Monetary Economics, Journal of Political Economy, Journal of Public Economics, Macroeconomic Dynamics, Review of Economic Studies, National Science Foundation, Social Sciences and Humanities Research Council*

## **Public Service:**

Social Sciences and Humanities Research Council of Canada, Standard Research Grants Committee Member, Committee 7 (Economics) 2000-2001.

## **Research Grants**

National Science Foundation Grant, (Co-Principal Investigator with John Ledyard, “Turing Tournament”, 2004-2006, US \$200,000.

Social Sciences and Humanities Research Council of Canada Grant (Principal investigator, with Thomas Sargent as co-investigator), “Experiments with Human Subjects in the Kydland and Prescott Environment”, 2002-2005, \$90,000 (\$15,000 in Research Time Stipend)

National Science Foundation Grant, Information Technology Program (Co-Principal Investigator with John Ledyard), “Computer Testbeds and Mechanism Design”, 2001-2004, US \$575,000.

Social Sciences and Humanities Research Council of Canada Grant, “Evolutionary Models of Bounded Rationality and Experimental Economics”, 1999 - 2002, \$78,200 (\$15,000 in Research Time Stipend).

Social Sciences and Humanities Research Council of Canada Grant, “Transition Dynamics and Equilibrium Selection in Macroeconomic Models”, 1996 - 1999, \$40,000.

President’s Research Grant, Simon Fraser University, 1996 - 1998.

Social Sciences and Humanities Research Council of Canada Grant, 1992 - 1995.

Simon Fraser University President’s Research Grant, 1993.

McGill University Research Grant, 1992.

**Graduate Supervision:** (last 5 years)

**A. Ph.D. students - Senior Supervisor**

Ruth Forsdyke, Ph.D. Simon Fraser University, August 2004, now Assistant Professor at the Department of Economics, Dalhousie University, title of the thesis: “Group Selection, Altruistic Preferences, and Economic Theory”.

Yiping Xu, Ph.D. Simon Fraser University, April 2005, title of the thesis “Agent-based Modeling of Financial Markets”, Assistant Professor, University of International Business and Economics, Beijing, China.

Maschek, Michael, Ph.D., Simon Fraaser University, April 2005 title of the thesis “Learning and Adaptation in Macroeconomic Environments”, Faculty, University College of Fraser Valley.

Kostyshyna, Olena, Ph.D. student, Simon Fraser University, title of the thesis “Learning and Monetary Policy”, expected date of graduation, April 2007.

**B. Serving on a Committee of a Ph.D. Thesis**

Hua, Jiang, Ph.D. student, Simon Fraser University, title of the thesis “Monetary Models of Banking”, expected date of graduation April 2007.

Casari, Marco, Ph.D., California Institute of Technology, 2003, title of the thesis “Essays on the Tragedy of Commons Problem”, now Assistant Professor at Purdue University.

**C. MA students - Senior Supervisor**

Bryan Yu, MA Simon Fraser University, August 2004, title of the MA research paper “Enforcement Learning: An Application of the Genetic Algorithm to the Economics of Tax Evasion”.

Orazbay, Sultan, MA, Simon Fraser University, December 2005, title “Social vs Individual Learning in Matching Pennies Game: Comparison with Experiments with Human Subjects”.

**Supervision of Research Personnel**

All of my Ph.D. and MA. economics students worked as my research assistants as well. During this time, they obtained an extensive training related to the methodology of implementation of a variety of learning models in economic environments. This included mastering theoretical concepts related to the behavior of dynamical systems as well as conducting computer testbeds aimed at examining

the robustness and features exhibited in computer simulations. In addition, they obtained extensive training in the use of experimental method, and have all participated in the design, programming and implementation of the experiments with human subjects. I have funded their research work through my SSHRC and NSF research funds.

In addition, I have trained a number of computer science students from Simon Fraser University and California Institute of Technology who had worked as my research assistants and programmers, both for simulating models of learning and adaptation as well as for designing experiments with human subjects.