Maxim Kristalny

Curriculum Vitae updated August 9, 2012

Identity number:	310640545
Date and place of birth:	October 11, 1979; St. Petersburg, Russia
Marital status:	married
Address:	Department of Automatic Control Lund University Ole Romers vag 1 SE 223 63 Lund, Sweden tel: +46 46 222 44 75 e-mail: maxim.kristalny@control.lth.se

Academic degrees

2010 PhD, Faculty of Mechanical Engineering,
Technion – IIT

2001 BSc (Summa Cum Laude), Faculty of Mechanical Engineering,
Technion – IIT

Academic appointments

2012- Lecturer, Faculty of Mechanical Engineering,
Technion-IIT *(starting from September 2012)*

2010-2012 Postdoctoral fellow, Department of Automatic Control,
Lund University, Sweden

2004-2005 Marie Curie fellow, Department of Applied Mathematics,
University of Twente, The Netherlands

Professional experience

2002-2004 Research assistant, Faculty of Mechanical Engineering,
Technion – IIT

2001-2004 Mechanical Engineer, IDF

Research interests

My research is in the area of control theory with the focus on

- distributed control
- control of delayed systems in telerobotics
- previewed information in estimation and control
- control of wind turbines and wind farms

Teaching experience

Courses taught at the Technion

- Advanced Control Laboratory (undergraduate, TA and lecturer)
- Introduction to Automation and Control (undergraduate, TA)
- Linear Control Systems (graduate, TA)

Courses taught at Lund University

- Robust Control (graduate, lecturer)

Honors

2010 Barazani prize for outstanding Ph.D. thesis,
Faculty of Mechanical Engineering, Technion-IIT

2009 Velger prize from Israeli Association for Automatic Control and El-Op

2009 Technion teaching assistant award for excellence

2004 Marie Curie fellowship (9 months) at the University of Twente, The Netherlands

Publications

Thesis

1 M. Kristalny. *Exploiting Previewed Information in Estimation and Control.* PhD thesis, Technion-IIT, Israel, 2010.

Refereed papers in professional journals

Published:

1 M. Kristalny and L. Mirkin, "A state-space solution of bilateral Diophantine equations over RH^{∞}," Systems & Control Letters, vol. 59, pp. 226-232, 2010.

2 M. Kristalny and L. Mirkin, "On the H^2 four-block model matching problem with preview," IEEE Transactions on Automatic Control, vol. 57, no. 1, pp. 204-309, 2012.

3 M. Kristalny and L. Mirkin, "On the parameterization of stabilizing solutions to general four-block model matching problems," SIAM Journal on Control and Optimization, vol. 50, no. 3, pp. 1413-1438, 2012.

Submitted:

4 M. Kristalny, D. Madjidian and T. Knudsen, "On the use of preview of the effective wind speed for reducing wind turbine tower oscillations," submitted to IEEE Transactions on Control Systems Technology.

In preparation:

5 M. Kristalny and P. Shah, "State-space methods for the fully decentralized H^2 model matching optimization."

6 M. Kristalny and J. H. Cho, "On the decentralized H^2 optimal control of bilateral teleoperation systems with time delays."

Conferences

Invited talks:

– "Distributed feedforward control of wind farms: prospects and open problems" (Wind Farm Flow and Control side event at European Wind Energy Event (EWEA), Brussels, Belgium, 2011)

– "Distributed feedforward control of wind farms: prospects and open problems" (French-Israeli Workshop on Delays and Robustness, Haifa, Israel, 2011)

– "Distributed feedforward control of wind farms" (Wind Turbine Control Symposium, Aalborg, Denmark, 2011)

Peer-reviewed papers in conference proceedings:

1 M. Kristalny[1] and L. Mirkin, "On the multi-channel H^∞ fixed-lag smoothing," in Proc. the 5th IFAC Workshop on Time-Delay Systems, Leuven, Belgium, 2004.

2 M. Kristalny and L. Mirkin, "Effects of a partial lag on the achievable performance of the H^∞ fixed-lag smoothing," in Proc. 44th IEEE Conf. Decision and Control, Sevilla, Spain, 2005, pp. 7937-7942.

3 M. Kristalny and L. Mirkin, "On the parameterization of stabilizing solutions to four-block model matching problems," in Proc. 18th International Symposium on Mathematical Theory of Networks and Systems, Blacksburg,Virginia, USA, 2008.

4 M. Kristalny and L. Mirkin, "On the H^2 two-side model matching with preview," in Proc. 19th International Symposium on Mathematical Theory of Networks and Systems, Budapest, Hungary, 2010.

5 M. Kristalny and L. Mirkin, "A state-space solution of bilateral diophantine equations over RH^∞," in Proc. 19th International Symposium on Mathematical Theory of Networks and Systems, Budapest, Hungary, 2010.

6 M. Kristalny and L. Mirkin, "Preview in H^2 Optimal Control: Experimental Case Studies," in Proc. 49th IEEE Conf. Decision and Control, Atlanta, Georgia USA, 2010, pp. 6004-6009.

7 M. Kristalny and D. Madjidian, "Feedforward control of wind farms: prospects and open problems," in Proc. 50th IEEE Conf. Decision and Control, Orlando, Florida USA, 2011, pp. 3464-3469.

8 M. Kristalny and P. Shah, "On the fully decentralized two-block H^2 model matching with one-sided dynamics," in Proc. American Control Conference, Montreal, Canada, 2012, pp. 6329-6333.

9 M. Kristalny and J. H. Cho, "On the H^2 decentralized controller synthesis for delayed bilateral teleoperation systems," in Proc. 10th International IFAC Symposium on Robot Control, Dubrovnik, Croatia, 2012, (to appear).

Invited seminar lectures:

– "On the multi-channel H^∞ fixed-lag smoothing" (University of Twente , The Netherlands, 2005)

[1] Presenter's name is underlined.

– "Control and estimation with information preview" (Rafael - Advanced Defense Systems, 2010)

– "Exploiting previewed information in estimation and control" (Stuttgart University, Germany; ETH, Zurich, Switzerland; Politecnico di Milano, Italy; INRIA Rocquencourt, France; University of Twente, The Netherlands; 2010)

– "Input/output stabilization in the general two-side model matching setup" (LAAS-CNRS, Toulouse, France, 2010)

– "How to use previewed information? A case study in the control of wind turbines." (Chalmers University, Gothenburg, Sweden; NREL-NWTC, Boulder, CO, US; 2012)

– "Bilateral teleoperation as a distributed control problem" (KTH Royal Institute of Technology, Stockholm; University of Colorado in Boulder, Denver, US; CEA-LIST, Paris, France; 2012)