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Arie Nakhmani

Education

- 2007– **Ph.D. Student**, *Ph.D. in progress*, Technion - Israel Institute of Technology, Department of Electrical Engineering, Haifa, Israel.
title *Visual Tracking: A Particle Filter/Template Matching Approach*
supervisors Prof. Allen Tannenbaum and Prof. Ezra Zeheb
- 2004–2007 **M.Sc. in Electrical Engineering**, *Summa Cum Laude*, Technion - Israel Institute of Technology, Haifa, Israel.
title *Generalized Nyquist Criterion and Generalized Bode Diagram for Analysis and Synthesis of Uncertain Control Systems*
supervisors Prof. Ezra Zeheb and Dr. Michael Lichtsinder
- 2001–2004 **B.Sc. in Electrical Engineering**, *Cum Laude*, Technion - Israel Institute of Technology, Haifa, Israel.
specialization Control Systems and Signal Processing

Professional experience

- 2000–2001 **Analog electronics technician / repairman**, *ATM Electronics*, Haifa, Israel.
1996–2000 **System development technician**, *Nave Electronica*, Haifa, Israel.

Teaching experience

- 2005– **Final projects supervisor for undergraduate students in the fields of Control Systems, Robotics, and Computer Vision**, *Control Lab*, Technion, Haifa.
- 2005–2009 **Teaching assistant in Control Systems 2 course**, Technion, Haifa.
- 2007 **Scitech - Science and Technology research camp for gifted high-school students**, *supervisor of two projects*, Technion, Haifa.
- 2004–2005 **Spice/OrCAD instructor in Linear Systems course**, Technion, Haifa.
- 2004 **Control laboratory instructor**, Technion, Haifa.
- 2004 **Participated in workshop on University teaching for teaching assistants**, Technion, Haifa.

Honors

- 2006– **Technion Scholarship for excellence in studies**, Technion, Haifa.
- 2009 **Ollendorf Fellowship for excellence in studies**, Technion, Haifa.
- 2009 **Supervisor of the project nominated for the best faculty project**, Technion, Haifa.
- 2007 **Naaman Scholarship for excellence in studies**, Technion, Haifa.
- 2007 **Supervisor of the best scientific project in Scitech 2007**, Technion, Haifa.
- 2004 **The prize for the best lab project**, *Control Lab*, Technion, Haifa.

Professional service

- 2009 Reviewer for American Control Conference 2010.
- 2009 Reviewer for 48th IEEE Conference on Decision and Control.
- 2008 SPIE student member.
- 2008 Session co-chair for Filtering and Estimation I session; 47th IEEE Conference on Decision and Control.
- 2008 Reviewer for SIAM Journal on Imaging Sciences.

Publications

Journal publications

- [1] A. Nakhmani, M. Lichtsinder, E. Zeheb, "*Generalized Bode Envelopes and Generalized Nyquist Theorem for Analysis of Uncertain Systems*," International Journal of Robust and Nonlinear Control, Under Review.
- [2] L. Etgar, A. Nakhmani, A. Tannenbaum, E. Lifshitz, R. Tannenbaum, "*Trajectory Control of PbSe-Fe₂O₃ Nanoplatfoms under Viscous Fluid Flow for Targeted Medicine*," Physics Review E, Under Review
- [3] A. Nakhmani, M. Lichtsinder, "*Analytical Formulation of Mikhailov and Nyquist Criteria for Γ -stability*," International Review of Automatic Control, September 2009.

In preparation

- [1] A. Nakhmani, A. Tannenbaum, "*Particle Filtering with Region-based Matching for Tracking of Partially Occluded and Scaled Targets*," Ready for submission

Conferences

- [1] A. Nakhmani, M. Lichtsinder, E. Zeheb, "*Generalized Nyquist Criterion and Generalized Bode Diagram for Analysis and Synthesis of Uncertain Control Systems*," 24th IEEE Convention of Electrical and Electronics Engineers in Israel, pp. 250-254, Nov. 2006.
- [2] A. Nakhmani, A. Tannenbaum, "*Scale-invariant Visual Tracking by Particle Filtering*," SPIE Europe Remote Sensing Conference, Sep. 2008.

- [3] S. Lankton, J. Malcolm, A. Nakhmani, A. Tannenbaum, "*Tracking Through Changes in Scale*," IEEE International Conference on Image Processing (ICIP), Oct. 2008.
- [4] A. Nakhmani, A. Tannenbaum, "*Particle Filtering Using Multiple Cross-correlations for Tracking Occluded Objects in Cluttered Scenes*," 47th IEEE Conference on Decision and Control (CDC), Dec. 2008.
- [5] K.W. Aschheim, A. Tannenbaum, A. Nakhmani, "*The Use of Computer Image Recognition and Interpretation Software for Automated Dental Age Determination – A Proof of Concept*," AAFS Annual Meeting, Denver, CO, Feb. 2009.

Workshops

- [1] A. Nakhmani, E. Zeheb, "*Generalized Nyquist Criterion and Generalized Bode Diagram for Analysis and Synthesis of Uncertain Control Systems*," The Annual Workshop for Graduate Students in Systems and Control (GSC), Weizmann Institute, Rehovot, Israel, 2006.
- [2] A. Nakhmani, A. Tannenbaum, E. Zeheb, "*Visual Tracking: A Particle Filter/Template Matching Approach*," The Annual Workshop for Graduate Students in Systems and Control (GSC), Tel-Aviv University, Tel-Aviv, Israel, 2008.
- [3] L. Etgar, A. Nakhmani, A. Tannenbaum, E. Lifshitz, R. Tannenbaum, "*The Behavior of PbSe–Fe₂O₃ Conjugate Nanostructures under Flow Conditions*," International Workshop on Optical Properties of Coupled Semiconductor and Metallic Nanoparticles, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany, July 2008.
- [4] A. Nakhmani, A. Tannenbaum, E. Zeheb, "*Particle Filtering Using Multiple Cross-Correlations for Tracking Occluded and Scaled Objects in Cluttered Scenes*," The Computer Vision Seminar, Hebrew University, Jerusalem, Israel, March 2009.