

Hitay Özbay

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PROFESSIONAL EXPERIENCE

Bilkent University, Ankara, Turkey Professor, Department of Electrical and Electronics Eng. Associate Provost Interim Dean, Faculty of Humanities and Letters	 2002—present 2014—present 2015—2017
INRIA Paris-Rocquencourt and Saclay-Île-de-France, France Professeur Invité, équipes AT-ROC/BANG and DISCO	 2009—2010
The Ohio State University, Columbus, OH, USA Adjunct Prof., Dept. of Electrical and Computer Engineering Visiting Professor, Dept. of Electrical and Computer Engineering Professor, Department of Electrical and Computer Engineering Associate Professor, Department of Electrical Engineering Assistant Professor, Department of Electrical Engineering	 2018—2019 2017—2018 2001—2006 1994—2001 1991—1994
University of Rhode Island, Kingston, RI, USA Assistant Professor, Department of Electrical Engineering	 1989—1990
University of Minnesota, Minneapolis, MN, USA Research and Teaching Assistant	 1987—1989
McGill University, Montreal, Quebec, Canada Research and Teaching Assistant	 1985—1987

EDUCATION

- 1987—1989 University of Minnesota, Minneapolis, MN, USA
Ph.D., Control Sciences and Dynamical Systems
- 1985—1987 McGill University, Montreal, Quebec, Canada
M.Eng, Electrical Engineering.
- 1981—1985 Middle East Technical University, Ankara, Turkey
B.S., Electrical and Electronics Engineering.

Publications:

a1. Books

1. H. Özbay, S. Gümüşsoy, K. Kashima, Y. Yamamoto, ***Frequency Domain Techniques for H^∞ Control of Distributed Parameter Systems***, SIAM, Philadelphia, 2018, ISBN 978-1-611975-39-0.
2. M. E. Ahsen, H. Özbay, S-I. Niculescu, ***Analysis of Deterministic Cyclic Gene Regulatory Network Models with Delays***, Birkhauser, Basel, 2015, ISBN 978-3-319-15605-7; DOI: 10.1007/978-3-319-15606-4 (2,435 chapter downloads as of December 31, 2017)
3. H. Özbay, ***Introduction to Feedback Control Theory***, CRC Press LLC, Boca Raton FL, 2000, ISBN 0-8493-1867-X.
4. C. Foias, H. Özbay, A. Tannenbaum, ***Robust Control of Infinite Dimensional Systems: Frequency Domain Methods***, Lecture Notes in Control and Information Sciences, vol. 209, Springer-Verlag, London, 1996, ISBN 3-540-19994-2.

a2. Edited Book

1. A. Seuret, H. Özbay, C. Bonnet, H. Mounier, (Eds.) ***Low-Complexity Controllers for Time-Delay Systems***, Advances in Delays and Dynamics, Vol. 2, Springer, 2014, ISBN 978-3-319-05575-6. DOI: 10.1007/978-3-319-05576-3 (10,767 chapter downloads as of December 31, 2017)

a3. Book Chapters

1. M. E. Ahsen, H. Özbay, S-I. Niculescu, “Stability and robustness analysis of a class of cyclic biological systems”, in *Time Delay Systems - Theory, Numerics, Applications, and Experiments*, T. Insperger, G. Orosz, T. Ersal (Eds.) Advances in Delays and Dynamics (ADD@S), Springer 2017, pp. 155—172; DOI 10.1007/978-3-319-53426-8_11
2. H. Özbay, “Robust Control of Infinite Dimensional Systems”, in *Encyclopedia of Systems and Control*, J.Baillieul, and T.Samad, (Eds.) Springer-Verlag, London, 2014, DOI: 10.1007/978-1-4471-5102-9_162-1
3. H. Özbay and A. N. Gündeş, “Design of First Order Controllers for Unstable Infinite Dimensional Plants”, in *Low-Complexity Controllers for Time-Delay Systems*, A. Seuret, et al. (eds.) Advances in Delays and Dynamics (ADD@S), Vol. 2, Springer, 2014, pp. 17—30; DOI: 10.1007/978-3-319-05576-3_2.
4. J. L. Avila, C. Bonnet, J. Clairambault, H. Özbay, S-I. Niculescu, F. Merhi, A. Ballesta, R. Tang, J.P. Marie, “Analysis of a new model of cell population dynamics in Acute Myeloid Leukemia”, in *Delay Systems: from Theory to Numerics and Applications*; T. Vyhlidal, J-F. Lafay, R. Sipahi eds., Advances in Delays and Dynamics at Springer (ADD@S), vol. 1, pp. 315—328, 2014; DOI: 10.1007/978-3-319-01695-5_23
5. M. E. Ahsen, H. Özbay, S-I. Niculescu, “Analysis of Gene Regulatory Networks Under Positive Feedback”, in *Delay Systems: from Theory to Numerics and Applications*; T. Vyhlidal, J-F. Lafay, R. Sipahi eds., Advances in Delays and Dynamics at Springer (ADD@S), vol. 1, pp. 127—140, 2014; DOI: 10.1007/978-3-319-01695-5_10
6. H. Özbay, C. Bonnet, H. Benjelloun, J. Clairambault, “Local Asymptotic Stability Conditions for the Positive Equilibrium of a System Modeling Cell Dynamics in Leukemia”, in *Time Delay Systems: Methods, Applications and New Trends*, R. Sipahi, T. Vyhlidal, S-I. Niculescu, P. Pepe (Eds.), LNCIS vol. 423, pp. 185—195, Springer-Verlag, Berlin Heidelberg, 2012.
7. H. Özbay, “Stable H^∞ Controller Design for Systems with Time Delays”, in *Perspectives in Mathematical System Theory, Control, and Signal Processing*, J.C. Willems et al. (Eds.), LNCIS vol. 398, pp. 105—113, Springer-Verlag, Berlin Heidelberg, 2010.
8. H. Özbay and A. N. Gündeş, “Integral Action Controllers for Systems with Time Delays” in *Topics in Time Delay Systems Analysis, Algorithms, and Control*, J.J. Loiseau, W. Michiels, S-I. Niculescu, R.

- Sipahi (Eds.), Lecture Notes in Control and Information Sciences, vol. 388, Springer-Verlag, London, 2009, pp.197--207.
9. M. M. Peet, C. Bonnet and H. Özbay, "SOS Methods for Stability Analysis of Neutral Differential Systems" in *Topics in Time Delay Systems Analysis, Algorithms, and Control*, J.J. Loiseau, W. Michiels, S-I. Niculescu, R. Sipahi (Eds.), Lecture Notes in Control and Information Sciences, vol. 388, Springer-Verlag, London, 2009, pp. 97--107.
 10. H. Özbay, "The Root Locus Method", in *Systems, Controls, Embedded Systems, Energy and Machines*, (a volume in *The Electrical Engineering Handbook*, 3rd Ed.), R. C. Dorf ed., CRC Press, Taylor & Francis Group, Boca Raton FL, 2006, pp. 11-34 to 11-58. **(INVITED)**.
 11. P. Yan and H. Özbay, "Robust Controller Design for AQM and H_∞ Performance Analysis" in *Advances in Communication Control Networks*, S. Tarbouriech, C. Abdallah, J. Chiasson Eds., Springer-Verlag LNCIS, Vol. 308. 2005, pp. 49—64.
 12. X. Yuan, M. Ö. Efe, H. Özbay, "On delay-based linear models and robust control of cavity flows," in *Advances in Time-Delay Systems*, S. Niculescu and K. Gu Eds., Springer-Verlag, LNCSE vol.38, 2004, pp.287-298. DOI: 10.1007/978-3-642-18482-6_21
 13. H. Özbay, "Principles of Feedback Control," *The Engineering Handbook* 2nd ed., R. C. Dorf Ed., CRC Press LLC, Boca Raton FL, 2004, Chapter 170; **(INVITED)**.
 14. H. Özbay, "The Root Locus Method", in *The Mechatronics Handbook*, R. Bishop ed., CRC Press LLC, Boca Raton FL, 2002, Chapter 26; **(INVITED)**.
 15. O. Toker and H. Özbay, "On the computation of suboptimal H_∞ controllers for unstable infinite dimensional systems," in *Robust Control Theory*, B. A. Francis and P. P. Khargonekar eds., IMA Volumes in Mathematics and its Applications, Springer-Verlag, 1995, pp. 105–128; **(INVITED)**.
 16. H. Özbay and J. Turi, "Feedback control of singular integro-differential systems: an input/output approach," in *Identification and Control in Systems Governed by Partial Differential Equations*, H. T. Banks, R. H. Fabiano, K. Ito eds., SIAM Proceedings in Applied Mathematics **68**, 1993, pp. 186–202.
 17. K. Lenz and H. Özbay, "Analysis and robust control techniques for an ideal flexible beam," in *Multidisciplinary Engineering Systems: Design and Optimization Techniques and their Applications*, C. T. Leondes ed., Academic Press Inc., 1993, pp. 369–421; **(INVITED)**.
 18. H. Özbay, "Computing the singular values and vectors of a Hankel operator," in R. J. Vaccaro Ed. *Singular Value Decomposition and Signal Processing*, Elsevier Science Publishers, Amsterdam, 1991, pp. 455–469. (*Selected papers from the 2nd Intl. Workshop on SVD and Signal Processing, Kingston RI, 1990.*)
 19. H. Özbay and A. Tannenbaum, "On the synthesis of H_∞ optimal controllers for infinite dimensional systems," in G. Chen, E. B. Lee, W. Littman and L. Markus Eds. *Distributed Parameter Control Systems: Trends and Applications*, Marcel Dekker Inc., New York, 1990, pp. 271–300; **(INVITED)**.
 20. C. A. Schwartz and H. Özbay, "An identification procedure for linear continuous time systems with jump parameters," in M. A. Kaashoek, J. H. van Schuppen, and A. C. M. Ran Eds. *Realization and Modelling in System Theory*, Birkhäuser, Boston, 1990, pp. 471–480. (*Selected papers from the MTNS-89, Amsterdam, The Netherlands, June 1989.*)
 21. C. A. Schwartz and H. Özbay, "Recursive identification algorithms as nonlinear systems: Parameter identifiability and controllability," in A. Isidori Ed. *Nonlinear Control Systems Design*, Pergamon Press, 1989, pp. 107–112. (*Selected papers from the IFAC Symposium, Capri, Italy, June 1989.*)

b. Peer Reviewed Journal Articles

1. V. Yücesoy, H. Özbay, “On the real, rational, bounded, unit interpolation problem in H_∞ and its applications to strong stabilization,” *Transactions of the Institute of Measurement and Control*, 2018, DOI: 10.1177/0142331218759598
2. P. Liu, P. Yan, H. Özbay, “Design and trajectory tracking control of a piezoelectric nano-manipulator with actuator saturations,” *Mechanical Systems and Signal Processing*, vol.111 (2018), pp.529–544
3. S. Ahmed, F. Mazenc, H. Özbay, “Dynamic output feedback stabilization of switched linear systems with delay via a trajectory based approach,” *Automatica*, vol. 93, July 2018, pp. 92–97.
4. F. Mazenc, M. Malisoff, H. Özbay, “Stability and Robustness Analysis for Switched Systems with Time-Varying Delays,” *SIAM J. Control and Optimization*, vol. 56, no. 1, (2018), pp. 158–182.
5. V. Yücesoy, H. Özbay, “Optimal Nevanlinna Pick Interpolant and its Application to Robust Repetitive Control of Time Delay Systems,” *Applied and Computational Mathematics*, vol.17, no.1, (2018), pp. 96–108.
6. A. T. Koru, A. Delibaşı, H. Özbay, “Dwell Time Based Stabilization of Switched Delay Systems Using Free-Weighting Matrices,” *International Journal of Control*, vol. 91, no. 1, (2018), pp. 1–11. doi:10.1080/00207179.2016.1266515.
7. H. Özbay, H. Ç. Sağlam, M. K. Yüksel, “Hopf Cycles in One Sector Optimal Growth Models with Time Delay,” *Macroeconomic Dynamics*, vol. 21 (2017), pp. 1887–1901. doi:10.1017/S1365100516000018.
8. P. Liu, P. Yan, Z. Zhang, H. Özbay “Robust Anti-windup Compensation for High Precision Tracking of a Piezoelectric Nano-stage” *IEEE Transactions on Industrial Electronics*, October 2016, vol. 63, no. 10, pp. 6460–6470; DOI: 10.1109/TIE.2016.2569060
9. M. E. Ahsen, H. Özbay, S-I. Niculescu, “Analysis of a Gene Regulatory Network Model with Time Delay using the Secant Condition” *IEEE Life Sciences Letters*, June 2016, vol. 2, no. 2, pp. 5–8; DOI: 10.1109/LLS.2016.2615091
10. M. E. Ahsen, H. Özbay, S-I. Niculescu “On the Analysis of a Dynamical Model Representing Gene Regulatory Networks under Negative Feedback”, *International Journal of Robust and Nonlinear Control*, vol. 24, no. 11, 2014, pp. 1609–1627, DOI: 10.1002/rnc.2947.
11. M. Wakaiki, Y. Yamamoto, H. Özbay, “Sensitivity Reduction by Stable Controllers for MIMO Infinite Dimensional Systems via the Tangential Nevanlinna-Pick Interpolation”, *IEEE Transactions on Automatic Control*, vol. 59 (2014), pp. 1099–1105; DOI: 10.1109/TAC.2013.2285788.
12. P. Yan, H. Özbay, M. Şansal, “Robust Stabilization of Parameter Varying Time Delay Systems by Switched Controllers,” *Applied and Computational Mathematics*, vol. 13, no. 1, 2014, pp. 31–45.
13. S. Y. Çalışkan, H. Özbay, S. I. Niculescu, “Dwell-time computation for stability of switched systems with time delays”, *IET Control Theory and Applications*, vol 7 (2013), pp. 1422–1428; DOI: 10.1049/iet-cta.2011.0749
14. A. E. Karagül, O. Demir, H. Özbay, “Computation of Optimal H_∞ Controllers and Approximations of Fractional Order Systems: a tutorial review” *Applied and Computational Mathematics*, vol. 12 (2013), pp. 261–288.
15. M. Wakaiki, Y. Yamamoto, H. Özbay, “Stable controllers for robust stabilization of systems with infinitely many unstable poles”, *Systems & Control Letters*, vol. 62 (2013), pp. 511–516.

16. H.U. Ünal, D. Melchor-Aguilar, D. Üstebay, S-I. Niculescu, H. Özbay, "Comparison of PI Controllers Designed for the Delay Model of TCP/AQM Networks," *Computer Communications*, vol. 36 (2013), pp.1225—1234, doi: <http://dx.doi.org/10.1016/j.comcom.2013.03.001>
17. B. Liacu, A.T. Koru, H. Özbay, S-I. Niculescu, C. Andriot, "Optimizing low-order controllers for haptic systems under delayed feedback", *Control Engineering Practice*, vol. 21 (2013), pp. 655—668.
18. H. Özbay, "Computation of H^∞ controllers for infinite dimensional plants using numerical linear algebra", *Numerical Linear Algebra with Applications*, vol. 20 (2013), pp. 327—335. DOI: 10.1002/nla.1809.
19. A. R. Fioravanti, C. Bonnet, H. Özbay, S-I. Niculescu, "A numerical method for stability windows and unstable root-locus calculation for linear fractional time-delay systems", *Automatica*, vol.48 (2012) pp. 2824—2830; DOI: 10.1016/j.automatica.2012.04.009.
20. M. Wakaiki, Y. Yamamoto, H. Özbay, "Sensitivity Reduction by Strongly Stabilizing Controllers for MIMO Distributed Parameter Systems" *IEEE Transactions on Automatic Control*, vol. 54 (2012), No. 8, pp. 2089—2094; DOI: 10.1109/TAC.2011.2179449
21. H. Özbay, C. Bonnet, H. Benjelloun and J. Clairambault, "Stability Analysis of Cell Dynamics in Leukemia," *Mathematical Modelling of Natural Phenomena*, vol. 7 (2012), No. 1, pp. 203—234; DOI:10.1051/mmnp/20127109.
22. H. Özbay, C. Bonnet, A. R. Fioravanti, "PID controller design for fractional-order systems with time delays", *Systems & Control Letters*, vol. 61 (2012), pp. 18—23.
23. A. N. Gündeş, H. Özbay, "Strong Stabilization of a Class of MIMO Systems", *IEEE Transactions on Automatic Control*, vol. 56, June 2011, pp. 1445—1452.
24. A. N. Gündeş, H. Özbay, "Reliable Decentralized Control of Delayed MIMO Plants", *International Journal of Control*, vol. 83, No. 3, March 2010, pp. 516—526.
25. H. U. Ünal, B. Ataşlar-Ayyıldız, A. İftar, H. Özbay, "Robust Flow Control in Data-Communication Networks with Multiple Time-Delays" *International Journal of Robust and Nonlinear Control*, vol. 20 (2010), pp. 1529—1548.
26. X. Yuan, E. Caraballo, J. Little, M. Debiasi, A. Serrani, H. Özbay, J. H. Myatt, M. Samimy, "Feedback Control Design for Subsonic Cavity Flows," *Applied and Computational Mathematics*, vol. 8 (2009), no. 1, pp. 70—91.
27. S. Gumussoy and H. Özbay, "Sensitivity Minimization by Strongly Stabilizing Controllers for a Class of Unstable Time-Delay Systems," *IEEE Transactions on Automatic Control*, vol. 54, March 2009, pp. 590—595.
28. İ. Munyas, Ö. Yelbasi, E. Biberovic, A. İftar, H. Özbay, "Decentralised robust flow controller design for networks with multiple bottlenecks", *International Journal of Control*, vol. 82, January 2009, pp. 95—116.
29. M.Ö. Efe, M. Debiasi, P. Yan, H. Özbay and M. Samimy, "Seven Tuning Schemes for an ADALINE Model to Predict Floor Pressures in a Subsonic Cavity Flow", *Transactions of the Institute of Measurement & Control*, vol. 31, no. 1 (2009), pp. 97—112.
30. P. Yan and H. Özbay, "Stability Analysis of Switched Time-Delay Systems." *SIAM J. Control and Optimization*, vol. 47 (2008), no. 2, pp. 936—949.
31. S. Gümüşsoy and H. Özbay, "Stable H_∞ controller design for time delay systems," *International Journal of Control*, vol. 81, no. 4, April 2008, pp. 546—556.

32. M. Ö. Efe, M. Debiasi, P. Yan, H. Özbay, M. Samimy, "Neural Network Based Modeling of Subsonic Cavity Flows", *International Journal of Systems Science*, vol. 39, No. 2, February 2008, pp. 105—117.
33. K. Kashima, Y. Yamamoto and H. Özbay, "Parameterization of suboptimal solutions of the Nehari problem for infinite-dimensional systems," *IEEE Transactions on Automatic Control*, vol. 52, no. 12, December 2007, pp. 2369—2374.
34. H. Özbay and A. N. Gündeş, "Resilient PI and PD Controller Designs for a Class of Unstable Plants with I/O Delays," *Applied and Computational Mathematics*, vol. 6 (2007), pp. 18—26.
35. P. Yan and H. Özbay, "On switching H_∞ controllers for a class of linear parameter varying systems," *Systems & Control Letters*, vol. 56 (2007), pp. 504—511.
36. D. Üstebay, H. Özbay, A. N. Gündeş, "A new PI and PID control design method for integrating systems with time delays: applications to AQM of TCP flows," *WSEAS Transactions on Systems and Control*, vol. 2, No. 2, February 2007, pp. 117—124.
37. A. N. Gündeş, H. Özbay, A. B. Özgüler, "PID controller synthesis for a class of unstable MIMO plants with I/O delays", *Automatica*, vol. 43, No. 1, January 2007, pp. 135—142.
38. P. Yan, M. Debiasi, X. Yuan, J. Little, H. Özbay, M. Samimy, "Experimental Study of Linear Closed-Loop Control of Subsonic Cavity Flow," *AIAA Journal*, vol. 44, No. 5, May 2006, pp. 929—938.
39. S. Gümüşsoy and H. Özbay, "Remarks on strong stabilization and stable H_∞ controller design," *IEEE Transactions on Automatic Control*, vol. 50, No. 12, December 2005, pp. 2083—2087.
40. K. Kashima, H. Özbay and Y. Yamamoto, "A Hamiltonian-based solution to the mixed sensitivity optimization problem for stable pseudorational plants," *Systems & Control Letters*, vol.54 (2005), pp.1063—1068.
41. M. Ö. Efe, H. Özbay and M. Samimy, "Infinite dimensional and reduced order observers for Burgers equation," *International Journal of Control*, vol.78, no.11 (2005), pp. 864—874.
42. P. Yan, Y. Gao and H. Özbay, "A Variable Structure Control Approach to Active Queue Management for TCP with ECN," *IEEE Transactions on Control Systems Technology*, vol. 13 no. 2 (2005), pp.203—215.
43. M. Ö. Efe and H. Özbay, "Low dimensional modelling and Dirichlet boundary controller design for Burgers equation," *International Journal of Control*, vol.77, no.10 (2004), pp. 895—906.
44. S. Gümüşsoy and H. Özbay, "On the Mixed Sensitivity Minimization for Systems with Infinitely Many Unstable Modes," *Systems & Control Letters*, vol.53 no.3-4 (2004), pp. 211—216.
45. P-F. Quet and H. Özbay, "On the Design of AQM Supporting TCP Flows Using Robust Control Theory," *IEEE Transactions on Automatic Control*, vol.49 no.6 (2004), pp.1031—1036.
46. M. Ö. Efe and H. Özbay, "Multi Input Dynamical Modeling of Heat Flow with Uncertain Diffusivity Parameter," *Mathematical and Computer Modelling of Dynamical Systems*, vol. 9, no. 4 (2003), pp. 443-456.
47. P-F. Quet, B. Ataslar, A. Iftar, H. Özbay, S. Kalyanaraman, T. Kang, "Rate-based flow controllers for communication networks in the presence of uncertain time-varying multiple time-delays," *Automatica*, vol. 38 no.6 (2002), pp.917—928.
48. A. Kataria, H. Özbay, H. Hemami, "Controller design for natural and robotic systems with transmission delays," *Journal of Robotic Systems*, vol. 19 (2002), no. 5, pp. 231—244; DOI: 10.1002/rob.10037
49. H. Özbay, "On the computation of H_∞ optimal controllers and connections with IMC-based design," *Applied and Computational Mathematics*, vol. 1 (2002), no. 1, pp. 5—13.
50. M. Zeren and H. Özbay, "On the strong stabilization and stable H_∞ controller design problems for MIMO systems," *Automatica*, vol. 36 (2000), no. 11, pp. 1675—1684.

51. H. Hemami and H. Özbay, "Modeling and control of biological systems with multiple afferent and efferent transmission delays," *Journal of Robotic Systems*, vol. 17 (2000), no. 11, pp. 609–622.
52. H. Özbay, Book Review: "Optimization of Linear Control Systems: Analytical Methods and Computational Algorithms," by F. A. Aliev and V. B. Larin, *IEEE Transactions on Automatic Control*, vol. 45 (2000), no. 10, pp. 1937–1938.
53. M. Zeren and H. Özbay, "On the synthesis of stable H_∞ controllers," *IEEE Transactions on Automatic Control*, vol. 44 (1999), no. 2, pp. 431–435.
54. M. Zeren and H. Özbay, "Comments on 'Solutions to the combined sensitivity and complementary sensitivity problem in control systems'," *IEEE Transactions on Automatic Control*, vol. 43 (1998), no. 5, p. 724.
55. O. Toker and H. Özbay, "On the complexity of purely complex μ computation and related problems in multidimensional systems," *IEEE Transactions on Automatic Control*, vol. 43 (1998), no. 3, pp.409–414.
56. V. Eldem, H. Özbay, H. Selbuz, K. Özcaldiran, "Partial disturbance rejection with internal stability and H_∞ norm bound," *SIAM Journal on Control and Optimization*, vol. 36 (1998) No. 1, pp. 180–192.
57. T. E. Peery and H. Özbay, " H_∞ optimal repetitive controller design for stable plants," *Transactions of the ASME Journal of Dynamic Systems, Measurement, and Control*, vol. 119 (1997), pp. 541–547.
58. O. Toker and H. Özbay, "Complexity issues in robust stability of linear delay-differential systems," *Mathematics of Control, Signals, and Systems*, vol. 9 (1996), pp. 386–400.
59. O. Toker and H. Özbay, "On the rational H_∞ controller design for infinite dimensional plants," *International Journal of Robust and Nonlinear Control* vol. 6 (1996), pp. 383–397.
60. C. Gu, O. Toker and H. Özbay, "On the two block H_∞ problem for a class of unstable distributed systems," *Linear Algebra and its Applications*, vol. 234 (1996), pp. 227–244.
61. O. Toker and H. Özbay, "Gap metric problem for MIMO delay systems: Parameterization of all sub-optimal controllers," *Automatica*, vol. 31 (1995), pp. 931–940.
62. O. Toker and H. Özbay, " H_∞ Optimal and suboptimal controllers for infinite dimensional SISO plants," *IEEE Transactions on Automatic Control*, vol. 40 no. 4 (1995), pp. 751–755.
63. H. Özbay and J. Turi, "On input/output stabilization of singular integro-differential systems," *Applied Mathematics and Optimization*, vol. 30, 1994, pp. 21–49.
64. H. Özbay and G. R. Bachmann, " H_2/H_∞ Controller design for a 2D thin airfoil flutter suppression," *AIAA Journal of Guidance Control & Dynamics*, vol. 17, 1994, pp. 722–728.
65. H. Özbay, " H_∞ optimal controller design for a class of distributed parameter systems," *International Journal of Control*, vol. 58 No. 4, October 1993, pp. 739–782.
66. H. Özbay, M. C. Smith and A. Tannenbaum, "Mixed sensitivity optimization for a class of unstable infinite dimensional systems," *Linear Algebra and its Applications*, vol. 178, 1993, pp. 43–83.
67. D. Enns, H. Özbay and A. Tannenbaum, "Abstract model and controller design for an unstable aircraft," *AIAA Journal of Guidance Control and Dynamics*, March-April 1992, vol. 15, No. 2, pp. 498–508.
68. H. Özbay, "Controller reduction in the 2-block H_∞ optimal design for distributed plants," *International Journal of Control*, November 1991, vol. 54, No. 5, pp. 1291–1308.
69. K. Lenz, H. Özbay, A. Tannenbaum, J. Turi and B. Morton, "Frequency domain analysis and robust control design for an ideal flexible beam," *Automatica*, November 1991, vol. 27, No. 6, pp. 947–961.
70. H. Özbay and A. Tannenbaum, "On the structure of suboptimal H_∞ controllers in the sensitivity minimization problem for distributed stable plants," *Automatica*, March 1991, vol. 27, No. 2, pp. 293–305.
71. H. Özbay, "A simpler formula for the singular values of a certain Hankel operator," *Systems and Control Letters*, vol. 15, No. 5, (1990) pp. 381–390.

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74. H. Özbay, "On L_1 optimal control," *IEEE Transactions on Automatic Control*, vol. 34 (1989), pp.884–885.

d. Papers in Proceedings

1. V. Yücesoy, H. Özbay, "Stable and Robust Controller Synthesis for Unstable Time Delay Systems via Interpolation and Approximation," *IFAC PapersOnLine* 51-14 (2018) 230–235; *14th IFAC Workshop on Time Delay Systems*, Budapest, Hungary, June 2018.
2. S. Gümüşsoy, H. Özbay, "On Feedback Stabilization of Neutral Time Delay Systems with Infinitely Many Unstable Poles," *IFAC PapersOnLine* 51-14 (2018) 118–123; *14th IFAC Workshop on Time Delay Systems*, Budapest, Hungary, June 2018.
3. D. Öztürk, H. Özbay, "Extension of an Anti-windup Scheme for Systems with Time Delay and Integral Action," *IFAC PapersOnLine* 51-14 (2018) 13–18; *14th IFAC Workshop on Time Delay Systems*, Budapest, Hungary, June 2018.
4. V. Yücesoy, H. Özbay, "Design of Robustly Stabilizing Low Order, Stable Controllers for Two-Link Underactuated Planar Robots", *2017 IEEE Conference on Control Technology and Applications (CCTA)* August 27-30, 2017. Kohala Coast, Hawai'i, USA, pp. 150—154.
5. W. Djema, H. Özbay, C. Bonnet, E. Fridman, F. Mazenc, J. Clairambault, "Analysis of blood cell production under growth factors switching", *IFAC PapersOnLine* 50-1 (2017), pp. 13312–13317, *IFAC World Congress*, Toulouse France, July 2017.
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 117. O. Toker and H. Özbay "On the structure of H_∞ controllers," *Proceedings of 33rd IEEE Conference on Decision and Control*, Lake Buena Vista, December 1994, pp. 3949-3954.
 118. O. Toker and H. Özbay, "Suboptimal robustness in the gap metric for MIMO delay systems," *Proceedings of the American Control Conference*, Baltimore MD, June-July 1994, pp. 3183-3187.
 119. O. Toker and H. Özbay, " H_∞ Controllers for unstable distributed plants," *Proceedings of 32nd IEEE Conference on Decision and Control*, San Antonio TX, December 1993, pp. 1170-1175.
 120. T. E. Peery and H. Özbay, "On H_∞ optimal repetitive controllers," *Proceedings of 32nd IEEE Conference on Decision and Control*, San Antonio TX, December 1993, pp. 1146-1151.
 121. O. Toker and H. Özbay, "Numerical issues in the computation of H_∞ controllers for distributed plants," *Proceedings of 31st Allerton Conference on Communication, Control and Computing*, University of Illinois Urbana-Champaign, September-October 1993, pp. 535-544; **(INVITED)**.
 122. H. Özbay, "Active control of a thin airfoil: flutter suppression and gust alleviation," *Preprints of 12th IFAC World Congress*, Sydney Australia, July 1993, vol. 2, pp. 155-158.
 123. O. Toker and H. Özbay, "On suboptimal H_∞ controllers for unstable distributed plants," *Proceedings of the American Control Conference*, San Francisco CA, June 1993, pp. 2160-2164.
 124. H. Özbay and G. R. Bachmann, "Active feedback controller design for a thin airfoil," *Proceedings of the American Control Conference*, San Francisco CA, June 1993, pp. 13-17.
 125. T. E. Peery and H. Özbay, "On fixed order controllers for delay systems: discrete time case," *Proceedings of the American Control Conference*, San Francisco CA, June 1993, pp. 1030-1031.
 126. H. Özbay, "Gust alleviation for an infinite dimensional model of a thin airfoil," *Proceedings of Ninth VPI&SU Symposium on Dynamics and Control of Large Structures*, Blacksburg VA, May 1993, pp. 145-153.
 127. H. Özbay, M. C. Smith and A. Tannenbaum, "On the optimal two block H_∞ compensators for distributed unstable plants," *Proceedings of the American Control Conference*, Chicago IL, June 1992, pp. 1865-1869.
 128. H. Özbay and G. R. Bachmann, "Robust control design techniques for active flutter suppression," *Proceedings of NASA Workshop on Distributed Parameter Modeling and Control of Flexible Aerospace Systems*, Williamsburg VA, June 1992, pp. 179-191.
 129. D. Enns, H. Özbay and A. Tannenbaum, " H_∞ optimal controllers for a distributed model of an unstable aircraft," *Proceedings of 30th IEEE Conference on Decision and Control*, Brighton UK, December 1991, pp. 3020-3024.
 130. H. Özbay and J. Turi, "Robust control of an aeroelastic system modeled by a singular integro-differential equation," *Proceedings of 30th IEEE Conference on Decision and Control*, Brighton UK, December 1991, pp. 2682-2686; **(INVITED)**.
 131. H. Özbay, "Approximately optimal finite dimensional controllers in the 2-block H_∞ problem for distributed plants," *Proceedings of 29th Allerton Conference on Communication, Control and Computing*, University of Illinois Urbana-Champaign, October 1991, pp. 912-921; **(INVITED)**.
 132. J. Turi and H. Özbay, "Robust stabilization of an Aero-elastic system," *Proceedings of the 1991 IEEE International Conference on Systems Engineering*, Dayton, OH, August 1991, pp. 424-427.
 133. D. Enns, H. Özbay and A. Tannenbaum, "Numerical computation and approximations of H_∞ optimal controllers for a 2-parameter distributed model of an unstable aircraft," *Proceedings of the*

- 1991 *IEEE International Conference on Systems Engineering*, Dayton, OH, August 1991, pp. 307-310.
134. H. Özbay, "On the 1-block H_∞ control problem for a class of MIMO distributed systems," *Proceedings of 1991 American Control Conference*, Boston MA, June 1991, pp. 1642-1647.
 135. H. Özbay, M. C. Smith and A. Tannenbaum, "On the two block problem for unstable distributed systems," *Proceedings of the 29th IEEE Conference on Decision and Control*, Honolulu Hawaii, December 1990, pp. 1163-1167.
 136. H. Özbay, "Computing the singular values of a Hankel operator," *Proceedings of the 2nd International Workshop on SVD and Signal Processing*, Kingston RI, June 1990, pp. 189-196; (see also Book Chapters item 4).
 137. H. Özbay, M. C. Smith and A. Tannenbaum, "Controller design for unstable distributed systems," *Proceedings of the 1990 American Control Conference*, San Diego CA, May 1990, pp. 1583-1588.
 138. H. Özbay, "On the H_∞ control of unstable MIMO systems with delays," *Proceedings of the Conference on Informations Sciences and Systems*, March 1990, Princeton Univ., pp. 122—126.
 139. H. Özbay and A. Tannenbaum, "A solution to the standard H_∞ problem for multivariable distributed systems," *Proceedings of the IEEE Conference on Decision and Control*, Tampa, Florida, December 1989, pp. 1444-1445.
 140. H. Özbay and A. Tannenbaum, "On approximately optimal H_∞ controllers for distributed systems," *Proceedings of the IEEE Conference on Decision and Control*, Tampa, Florida, December 1989, pp. 1454-1459.
 141. K. Lenz, H. Özbay, A. Tannenbaum, J. Turi and B. Morton, "Robust control design for a flexible beam using a distributed parameter H_∞ method," *Proceedings of the IEEE Conference on Decision and Control*, Tampa, Florida, December 1989, pp. 2673-2678.
 142. C. Foias, H. Özbay and A. Tannenbaum, "Remarks on H_∞ optimization of multivariate distributed systems," *Proceedings of the IEEE Conference on Decision and Control*, Austin TX, December 1988, pp. 985-986.
 143. H. Özbay and C. A. Schwartz, "On the controllability of some recursive parameter estimation algorithms," *Proceedings of the Conference on Information Sciences and Systems*, Johns Hopkins University, March 1987, pp. 664-669.

c. Abstracts, Papers in Local Conferences and Technical Reports

1. A.E. Karagül, H. Özbay, "Optimal H_∞ Controller Design for a Fractional Order System with Time Delay," in *Extended Abstracts of 4th Conference on Control and Optimization with Industrial Applications (COIA 2013)*, July 2103, Borovets, Bulgaria, pp. 44—45.
2. U. Taşdelen, O. Demir, G. Kuralay, H. Özbay, B. Özgüler, "On Predictor-Based Controller Design for a Flexible Robot Arm," in *Extended Abstracts of 4th Conference on Control and Optimization with Industrial Applications (COIA 2013)*, July 2013, Borovets, Bulgaria, pp. 77—78.
3. O. Demir, U. Taşdelen, G. Kuralay, H. Özbay, B. Özgüler, "Robust Control Oriented System Identification of a Flexible Robot Arm," in *Extended Abstracts of 4th Conference on Control and Optimization with Industrial Applications (COIA 2013)*, July 2013, Borovets, Bulgaria, pp. 21—24.
4. A.E. Karagül, H. Özbay, "Kesirli bir manyetik süspansiyon system modeli için H_∞ denetleç tasarımı," *Türkiye Otomatik Kontrol Ulusal Toplantısı (TOK2012)*, Niğde, September 2012, pp.424—427.
5. M. E. Ahsen, H. Özbay, "Eritropoez Modelinin Kararlılık Analizi," *Türkiye Otomatik Kontrol Ulusal Toplantısı (TOK2011)*, İzmir, September 2011, pp. 32—36.
6. H. Özbay, C. Bonnet, H. Benjelloun, J. Clairambault, "Global Stability Analysis of a System Modeling Cell Dynamics in AML" in *Abstracts of the 3rd Conference on Computational and Mathematical*

Population Dynamics (CMPD3), Bordeaux, France, June 2010, p. 186.

7. G. E. Şafak, H. Özbay, "Zaman Gecikmeli ve Kararsız Sistemler için PI Denetleyici Tasarımı," *Türkiye Otomatik Kontrol Ulusal Toplantısı* (TOK'08), İstanbul Teknik Üniv., İstanbul, Kasım 2008, pp. 176—181.
8. S. Y. Çalışkan, H. Özbay, "Zaman Gecikmeli Geri Besleme İçeren Isı Denkleminin Kararlılık Çözümlemesi," *Türkiye Otomatik Kontrol Ulusal Toplantısı* (TOK'08), İstanbul Teknik Üniv., İstanbul, Kasım 2008, pp. 172—175.
9. U. O. Candoğan, H. M. Özaktaş, H. Özbay, "Kesirli Fourier Dönüşümünün Kontrol Sistemlerinde Bir Uygulaması," *Türkiye Otomatik Kontrol Ulusal Toplantısı* (TOK'07), Sabancı Üniv., İstanbul, Eylül 2007, pp. 417—422.
10. D. Üstebay, H. Özbay, "TCP Akışları İçin PI ve PID Kontrolü Temelli AQM Tasarımları," *Türkiye Otomatik Kontrol Ulusal Toplantısı* (TOK'06), TOBB ETÜ, Ankara, Kasım 2006, pp. 461—466.
11. M. S. Ezercan, H. Özbay, "Zaman Gecikmeli Sistemler İçin H_∞ Süzgeç Tasarımı," *Türkiye Otomatik Kontrol Ulusal Toplantısı* (TOK'06), TOBB ETÜ, Ankara, Kasım 2006, pp. 457—460.
12. H. U. Ünal, B. Ataşlar Ayyıldız, A. İftar, H. Özbay, "Çoklu Zaman Gecikmeli Veri İletişim Ağları İçin Gürbüz Denetleyici Tasarımı" *Türkiye Otomatik Kontrol Ulusal Toplantısı* (TOK'06), TOBB ETÜ, Ankara, Kasım 2006, pp. 451—456.
13. M.Ö. Efe, M. Debiassi, P. Yan, H. Özbay and M. Samimy, "Aerodinamik Akışların Modellenmesinde Döngülü Olan ve Olmayan 7 Yaklaşımın Uygulanması," *Türkiye Otomatik Kontrol Ulusal Toplantısı* (TOK'06), TOBB ETÜ, Ankara, Kasım 2006, pp. 178—184.
14. M.Ö. Efe, M. Debiassi, P. Yan, H. Özbay and M. Samimy, "Epsilon-Duyarsız Destek Vektör Makinelerinin Uçak Altı Basınç Profilinin Modellenmesinde Kullanımı" *Savunma Teknolojileri Kongresi (SAVTEK 2006)*, ODTÜ, Ankara, Haziran 2006, Vol.1, pp. 267-276.
15. M. Ö. Efe, M. Debiassi, P. Yan, H. Özbay, M. Samimy, "Iterative and Batch Mode Algorithms for Modeling of Aerodynamic Cavity Flows Under Boundary Excitations," in *Abstracts of ICNPAA 2006, 6th International Conference on Mathematical Problems in Engineering and Aerospace Sciences*, Budapest, Hungary, June 2006, p. 19 (**INVITED**).
16. M.Ö. Efe, M. Debiassi, P. Yan, H. Özbay ve M. Samimy, "Ses Altı Kavite Akışlarının En Küçük Kareler Yöntemi ile Genelleştirilmiş Bir Modelinin Oluşturulması," *3. Otomasyon Sempozyumu ve Sergisi*, Pamukkale Üniversitesi, Denizli, Kasım 2005, pp. 143-147, 2005
17. X. Yuan, M. Ö. Efe, H. Özbay, "On Delay-Based Linear Models and Robust Control of Cavity Flows," in *Abstracts of the papers presented at NSF-CNRS Workshop on Time Delay Systems*, Paris, France, January 2003, pp. 103-104, (**INVITED**).
18. H. Özbay, "Finite dimensional H_∞ controllers for a class of infinite dimensional systems," in *Abstracts of the Papers Presented at MATH2000* (joint meeting of Canadian Mathematical Society, Canadian Applied and Industrial Mathematics Society, and four other Canadian societies), Hamilton Ontario, June 2000, p. 10; (**INVITED**).
19. H. Özbay, and S. Garg, *Stable H_∞ Controller Design for the Longitudinal Dynamics of an Aircraft*, NASA technical memorandum, 106847, National Aeronautics and Space Administration, Washington, DC, 1995.
20. H. Özbay, "On multivariable two block H_∞ control problem," in *Abstracts of Papers Presented to the American Mathematical Society*, (Abstracts for Joint Mathematics Meetings, Cincinnati OH, January 1994), vol.15, No.1, 1994, p. 158; (**INVITED**).
21. C. Gu, O. Toker and H. Özbay, "On the two-block H_∞ problem for a class of unstable distributed systems," in *Abstracts of Papers Presented to the American Mathematical Society*, (Abstracts for Joint Mathematics Meetings, Cincinnati OH, January 1994), vol.15, No.1, 1994, p. 104; (**INVITED**).
22. O. Toker and H. Özbay, "Parametrization of suboptimal H_∞ controllers for unstable distributed plants," in *Abstracts of SIAM Conference on Linear Algebra in Signals, Systems and Control*, Seattle WA, August 1993, p. 26.

23. H. Özbay, "Robustness of repetitive controllers: An H_∞ perspective," *Abstracts of SIAM Conference on Control and its Applications*, Minneapolis MN, September 1992, p. 10.

PhD Dissertations and MS Theses Supervised:

- P1. H_∞ Optimal Repetitive Control: Continuous-Time and Sampled-Data Formulations, PhD Dissertation by Thaddeus E. Peery, 1995; Ohio State University.
- P2. Complexity Issues in System Theory and Solution Procedures for Certain Robust Control Problems, PhD Dissertation by Onur Toker, 1995; Ohio State University.
- P3. Strong Stabilization and Stable H_∞ Controller Design, PhD Dissertation by Murat Zeren, 1997; Ohio State University.
- P4. Congestion Control for Next-Generation Global Internets, PhD Dissertation by Yuan Gao, (co-advised by J. C. Hou), 2002; Ohio State University.
- P5. A Robust Control Theoretic Approach to Flow Control Designs for Congestion Control in Communication Networks, PhD Dissertation by Pierre-Francois D. Quet, 2002; Ohio State University.
- P6. Control Methods for Data Flow in Communication Networks, PhD Dissertation by Peng Yan, 2003; Ohio State University.
- P7. Optimal H_∞ Controller Design and Strong Stabilization for Time-Delay and MIMO Systems, PhD Dissertation by Suat Gümüşsoy, 2004; Ohio State University.
- P8. Model-Based Feedback Control of Subsonic Cavity Flows – Control Design, PhD Dissertation by Xin Yuan, (co-advised by A. Serrani), 2006; Ohio State University.
- P9. Robustly and Strongly Stabilizing Low Order Controller Design for Infinite Dimensional Systems, PhD Dissertation by Veysel Yucesoy, 2018, Bilkent University.
- P10. Observer Design and Output Feedback Stabilization of Time Varying Systems, PhD Dissertation by Saeed Ahmed, (co-advised by F. Mazenc, INRIA), 2018; Bilkent University.
- M1. Design of H_∞ Suboptimal Controllers for Unstable Distributed Plants, M.S. thesis by Onur Toker, Autumn 1992; Ohio State University.
- M2. Robust Control Design Techniques for the Active Control of an Aeroelastic System, M.S. thesis by Glen R. Bachmann, Autumn 1992; Ohio State University.
- M3. Control and Approximation of Delay Systems, M.S. thesis by Cemil Ulus, Winter 1994; Ohio State University.
- M4. Fixed Order Approximation of Infinite Dimensional Systems, M.S. thesis by C. Anthony Bailey, Spring 1995; Ohio State University.
- M5. Feedback Control of Temperature Fields in an Arc Welding Process, M.S. thesis by Jin Yang, Spring 1996; Ohio State University.
- M6. Applications of H_∞ Theory in Repetitive Control, M.S. thesis by M. Baris Uzman, Summer 1997; Ohio State University.
- M7. Identification and Control of a Multi-Stage Polyester Film Oven, M.S. thesis by Leslie A. Adams, Spring 1998; Ohio State University.
- M8. Design and Gain Scheduling of Multivariable H_∞ -Based Steering Controllers for Vehicles with Modeled Time Delays, M.S. thesis by T. Burak Sahin, Spring 1998; Ohio State University.

- M9. *H_∞ Controller Design for Neuromusculoskeletal Systems with Multiple Afferent and Efferent Transmission Delays*,
M.S. thesis by Abhaykumar T. Kataria, Autumn 1999; Ohio State University.
- M10. *Switched H_∞ Controllers for Time-Varying Time Delay Systems*,
M.S. thesis by Rahul S. Bhojani, Autumn 1999; Ohio State University.
- M11. *Approximation of Infinite Dimensional SISO H_∞ Controllers*,
M.S. thesis by Richard J. Thomas, Winter 2000; Ohio State University.
- M12. *Infinite Dimensional Process Identification and H_∞ Control Applied to an Internal Model Controller*, M.S. thesis by Kevin D. Starr, Summer 2000; Ohio State University.
- M13. *Application of Control Theoretic Tools to the Analysis and Design of Congestion Control Algorithms in Communication Networks*,
M.S. thesis by Sriram Chellappan, (co-advised by A. Durrresi), Summer 2002; Ohio State University.
- M14. *A New PI and PID Control Design Method and its Application to Active Queue Management of TCP Flows*,
M.S. thesis by Deniz Üstebay, June 2007, Bilkent University.
- M15. *H_∞ Based Filtering for Systems With Time Delays and Application to Vehicle Tracking*,
M.S. thesis by M. Sami Ezercan, August 2007, Bilkent University.
- M16. *Stability and Dwell Time Analysis of Switched Time Delay Systems*,
M.S. thesis by Osman S. Tapkan, September 2007, Bilkent University.
- M17. *An Optimal Solution for the Multi-Agent Rendezvous Problem Appearing in Cooperative Control*,
M.S. thesis by Fatih. Kölmek, September 2008, Bilkent University
- M18. *PID Controller Design for First Order Unstable Time Delay Systems*
M.S. thesis by Gül Ezgi Arslan, July 2009, Bilkent University
- M19. *Stability Analysis and Controller Design for the Heat Equation with Time Delayed Feedback*,
M.S. thesis by Sina Yamaç Çalışkan, August 2010, Bilkent University
- M20. *Analysis of Two Types of Cyclic Biological System Models with Time Delays*,
M.S. thesis by Mehmet Eren Ahsen, July 2011, Bilkent University
- M21 *Controller Design for Haptic Systems Under Delayed Position and Velocity Feedback*,
M.S. thesis by Ahmet Taha Koru, August 2012, Bilkent University
- M22 *Smith Predictor based Controller Design for a Flexible Robot Arm*,
M.S. thesis by Uğur. Taşdelen, July 2013, Bilkent University
- M23 *Reduced Order Modeling of Infinite Dimensional Systems from Frequency Response Data*
M.S. thesis by Okan Demir, July 2014, Bilkent University
- M24 *Computation of the Optimal H_∞ Controller for a Fractional Order System*
M.S. thesis by Abidin Erdem. Karagül, July 2014, Bilkent University
- M25 *Design of P and PI Controllers for Head Positioning in Hard Disk Drives with Time Delay*
M.S. thesis by Havva Buket Koyuncu, June 2015, Bilkent University
- M26 *Design of PD Controllers for Unstable Infinite Dimensional Plants with Time Delay*
M.S. thesis by Deniz Varol, June 2015, Bilkent University
- M27 *H_∞ Filter Based Target Tracking Under Time Delayed Measurements*
MS thesis by Ezgi Ateş, September 2015, Bilkent University
- M28 *Design of First Order Controllers for a Flexible Robot Arm with Time Delay*

MS thesis by Gökçe Kuralay, May 2016, Bilkent University

M29 *An Anti-Windup Compensator for Systems with Time Delay and Integral Action*
MS thesis by Dilan Öztürk, August 2017, Bilkent University

M30 *Numerical Computation and Implementation of H-infinity Controllers for Retarded and Neutral Time Delay System*
MS thesis by Mustafa Oguz Yegin, November 2017, Bilkent University

M31 *On Mixed H_2/H_∞ Controller Design for Systems with Time Delay*
MS thesis by Meysam Ghomi, July 2018, Bilkent University

Sponsored Research

1. *Robust Control of Time Delayed Linear Parameter Varying Systems via Switched Controllers*, TÜBİTAK (Turkey) and EGIDE (France) Bosphorus Project; PIs: H. Özbay and F. Mazenc; January 2016 - December 2017. For the TUBITAK (project no 115E820), I am the PI and my share of the budget is 287,729 TL
2. *Control and Stabilization of Satellite Communication Units on Moving Platforms*, ASELSAN (project no. HBT-TE-2015-023), PI: H. Özbay, August 2015 – November 2016, 187,700 TL + VAT
3. *Development and Application of Robust Control Algorithms*, Sponsor: ASELSAN (project no. SST-IA-2012-134), PIs: H. Özbay (%80) and A. B. Özgüler (%20), January 2013 – January 2014; 153,895 TL
4. *Development of Servo Control Algorithms*, Sponsor: ASELSAN; PI: H. Özbay (with co-PIs Ö. Morgül and A. B. Özgüler), May 2011— May 2012 (461,450 TL); my share of funding is 40%.
5. *Center of Excellence for Motion Sensors and Micro System Technologies*, Sponsor: DPT (State Planning Agency); PI: O. Aytür, co-PI: H. Özbay, responsible for Control System Laboratory; April 2010 — April 2013 (total external funding is 15,000,000 TL); my share of funding is 150,000 TL.
6. *Low Order Controller Design for Systems with Time Delays*; Sponsor: TÜBİTAK (Turkey) and EGIDE (France); PIs: H. Özbay and S-I. Niculescu; February 2010—January 2012 (budget for TÜBİTAK's contribution is 11,000 TL).
7. *Analysis and Control of Switched Systems with Time Delays*; Sponsor: TÜBİTAK; PI: H. Özbay, July 2006—June 2009 (100,980 TL).
8. *Design of Sensor Fusion Algorithms for HERIKKS-II*; Sponsor: ASELSAN; PIs: M. Demirekler, H. Özbay, M. Kuzuoğlu; My share of funding is 28,200 YTL. February 2006 – January 2007.
9. *Design of Sensor Fusion Algorithms for HERIKKS-II*; Sponsor: ASELSAN; PIs: H. Özbay and M. Demirekler; My share of funding is \$20,400. November 2004 – October 2005.
10. *Robust Control of Infinite Dimensional Systems*; Sponsor: European Commission, Marie Curie International Reintegration Grant; PI: H. Özbay; (€ 80,000) May 2004 — May 2006.
11. *Collaborative Center of Control Science*; Sponsor: Air Force Research Laboratories, and Air Force Office of Scientific Research; PIs from OSU include K. Passino, H. Özbay, M. Samimy, J. B. Cruz, U. Ozguner, S. Yurkovich, R. K. Yedavalli, A. Serrani; my share of the funding is \$327,998: September 2001 - September 2004.
12. *Congestion Control Methods for the Edge Networks of the Internet*, PI: H. Özbay; Sponsor: SBC-Ameritech Faculty Grant through the Graduate School, OSU; July 2001 - June 2002, (\$29,865).
13. *Design, Theoretical Validation, and Empirical Evaluation of a Class of Multicast Congestion Control Schemes: Applying Feedback Control Theory to Multicast Congestion Control*, PIs: C-J. Hou and H. Özbay (50%); Sponsor: National Science Foundation (Grant No. ANI-0073725); July 2000 - June 2003, (\$360,000).
14. *Approximation, Identification and Robust Control of Systems with Time Delays*, PI: H. Özbay; Sponsor: Asea Brown Boveri (ABB); April 2000 - September 2000, (\$9,116).
15. *Rate Based Flow Control Algorithms for High Speed Networks*, PI: H. Özbay; Sponsor: Rensselaer

School of Engineering; September 1998 - September 2001, (\$180,097). This is a subcontract for my joint project with Dr. S. Kalyanaraman of RPI, that is funded through National Science Foundation, under Grant No: ANI-9806660; total project budget is \$563,725 and it is managed by RPI.

16. *An Experimental Testbed for research in advanced wireless communications*, PIs: M. Fitz, S. W. Ellingson, C-J. Hou, R. Jain, U. Mitra, H. Özbay; Sponsor: National Science Foundation (Grant No: ANI-9809018); September 1998 - August 2001, (\$1,450,203).
17. *US-Turkey Cooperative Research: Routing and Flow Control for High Speed Networks*, PI: H. Özbay; Sponsor: National Science Foundation (Grant No: INT-9809903); October 1998 - September 2001, (\$10,125).
18. *US-Turkey Planning Visit: Collaboration on integrated routing and flow control for traffic networks*, PI: H. Özbay; Sponsor: National Science Foundation (Grant No: INT-9724042); June 1997 - November 1997, (\$2,185).
19. *Computational Methods for Strongly Stabilizing H_∞ Controllers*; PI: H. Özbay; Sponsor: NASA Lewis Research Center (Grant No: NAG3-1826); April 1996 - September 1997, (\$49,999).
20. *Design Tools for Strongly Stabilizing H_∞ Controllers and Noninteracting Control of Aircraft Dynamics*, PI: H. Özbay; Sponsor: NASA Lewis Research Center (Grant No: NAG3-1723); March 1995 - March 1996, (\$55,243).
21. *Intelligent Control and Sensing via Neural Networks and Sliding Modes for Arc Welding*, PIs: S. I. Rokhlin, R. W. Richardson, Ü. Özgüner, H. Özbay (25%); Sponsor: Office of Research, The Ohio State University (Targeted Interdisciplinary Seed Grant); April 1994 - June 1996, (\$40,000).
22. *Controller Design for Unstable Aeroelastic Systems*, PI: H. Özbay; Sponsor: Air Force Office of Scientific Research (Grant No: F49620-93-1-0288); June 1993 - June 1994, (\$47,000).
23. *H_∞ Optimal Repetitive Control of Closed Loop Servohydraulic Testing*, PIs: K. Srinivasan and H. Özbay (50%); Sponsor: National Science Foundation (Grant No: MSS-9203418); July 1992 - December 1996, (\$139,943).
24. *Reduced Order Robust Controller Design*, PI: H. Özbay; Sponsor: Office of Research, The Ohio State University (Seed Grant); December 1991 - June 1993, (\$15,000).
25. *Control of an Active Magnetic Bearing*, PI: H. Özbay; Sponsor: Magnetic Bearings Inc., Groton CT, University of Rhode Island Foundation; July 1990 - August 1990, (\$4,000).

Services

1. Professional Service:

1.a Society Memberships and Services

- *Fellow of IEEE* (2018) and member of its Control Systems Society since 1989.
- *Chair*, Control Systems Chapter of IEEE Columbus Section, 1994—1999.
- *Member of the Board of Governors*, IEEE Control Systems Society, (Appointed 1999 and 2013; and Elected 2017—2019).
- *Vice-Chair* of the IFAC Technical Committee on Linear Control Systems, 2017—2020.
- *Vice-Chair* of the IFAC Technical Committee on Networked Systems, 2005—2011.
- *General Assembly Member* of The European Control Association (EUCA), representing Turkey, 2013 — present.
- *Member of the Ethics in Publishing Committee*, IEEE Control Systems Society, 2014 — present.
- *SIAG/Control and Systems Theory Prize Selection Committee*, SIAM, 2016 — present.

1.b Editorial Board Membership for Technical Journals and Book Series

- Area Editor for the Springer book series *Advances in Delays and Dynamics*, 2013 — present.

- Associate Editor, *SIAM J. Control and Optimization*, 2012 — 2014.
- Associate Editor, *Automatica* (a journal of Int. Federation of Automatic Control), 2001 — 2007 and 2012— present.
- Associate Editor, *IEEE Transactions on Automatic Control*, 1997—1999.
- Associate Editor, *Journal of Control Science and Engineering*, 2006 – 2009.
- Member of the Editorial Board, *Applied and Computational Mathematics*, 2002 – present.
- Member of the Advisory Board, *TWMS Journal of Pure and Applied Mathematics*, 2010 – present.

1.c Invited Talks at Conferences

- Plenary talk at the *17th Joint International Conference on System Theory, Control and Computing – ICSTCC 2013*, Sinaia, Romania, October 11, 2013.
- Semi-Plenary Lecture at the *19th International Symposium on Mathematical Theory of Networks and Systems (MTNS 2010)*, Budapest, Hungary, July 2010.
- Semi-Plenary Lecture at the *17th International Symposium on Mathematical Theory of Networks and Systems (MTNS 2006)*, Kyoto Japan, July 2006.
- Plenary Lecture at the Turkish Automatic Control National Conference (*Türkiye Otomatik Kontrol Ulusal Toplantısı, TOK 2006*), Ankara, Turkey, November 2006.
- Invited talk at the *Workshop on Networked Control Systems*, Kyoto, Japan, March 2008.
- Invited talk at the *2nd International Conference on Control and Optimization with Industrial Applications (COIA 2008)*, Baku, Azerbaijan, June 2008.

1.d Conference Organization Committees

- *General Chair*, of the Joint IFAC Meeting 6th Symposium on System Structure and Control (SSSC2016) and 13th Workshop on Time Delay Systems (TDS2016), Istanbul, Turkey, June 2016.
- *Publicity Chair*: IEEE Conference on Control Applications (CCA 1996)
- *Publications Chair*:
 - ◆ 41st IEEE Conference on Decision and Control (CDC 2002);
 - ◆ Game Theory for Networks (GameNets) 2009
- *Program Committee Co-Chair*, SIAM Conference on Control and its Applications, 2015, Paris, France
- *Technical Associate Editor* for the 17th IFAC World Congress, 2008, Seoul, Korea
- *Technical Associate Editor* for the 18th IFAC World Congress, 2011, Milan, Italy
- *Technical Associate Editor* for the 19th IFAC World Congress, 2014, Cape Town, South Africa
- *National Organizing Committee Member*: IFAC Symposium on Advanced Control of Chemical Processes (ADCHEM 2009), İstanbul, Turkey, 2009.
- *General Chair*: 3rd International Conference on Control and Optimization with Industrial Applications (COIA 2011) at Bilkent University, 22—24 August 2011
- *Best Student Paper Selection Committee Member*, European Control Conference (ECC'15), Linz, Austria, July 2015
- *Best Student Paper Selection Committee Chair*, IFAC World Congress, Berlin, Germany 2020.
- *Technical Program Committee Member*:
 - ◆ IEEE Conference on Control Applications (CCA 2000);
 - ◆ 40th IEEE Conference on Decision and Control (CDC 2001);
 - ◆ Joint 44th IEEE Conference on Decision and Control (CDC 2005) and the European Control Conference (ECC 2005)

- ◆ 27th IEEE International Conference on Computer Communications (INFOCOM 2007)
- ◆ 12th IFAC Symposium on Control in Transportation Systems (CTS 2009)
- ◆ 1st IFAC Workshop on Estimation and Control of Networked Systems (NecSys 2009), Venice, Italy, September 2009.
- ◆ Control over Communication Channels (ConCom 2009)
- ◆ Joint 48th IEEE Conf. on Decision and Control (CDC 2009) and 28th Chinese Control Conference (CCC 2009)
- ◆ 19th International Symposium on Mathematical Theory of Networks and Systems; MTNS2010, Budapest, Hungary, July 2010.
- ◆ Joint 50th IEEE Conference on Decision and Control (CDC2011) and 2011 European Control Conference (ECC2011), Orlando, FL, December 2011.
- ◆ 3rd IFAC Workshop on Estimation and Control of Networked Systems (NecSys 2012), Santa Barbara CA, September 2012.
- ◆ IFAC Workshop on Time Delays Systems, Boston, MA, June 2012.
- ◆ 51st IEEE Conference on Decision and Control, Maui, Hawaii December 2012;
- ◆ IFAC Joint conference: 5th Symposium on System Structure and Control, 11th Workshop on Time-Delay Systems, 6th Workshop on Fractional Differentiation and Its Applications, Grenoble, France, February, 2013.
- ◆ 4th IFAC Workshop on Estimation and Control of Networked Systems (NecSys'13), Koblenz, Germany, September 2013.
- ◆ European Control Conference, Strasbourg, France, June 2014.
- ◆ 21st International Symposium on Mathematical Theory of Networks and Systems; MTNS2014, Groningen, The Netherlands, July 2014.
- ◆ European Control Conference, Linz, Austria, July 2015.
- ◆ 1st IFAC Workshop on Linear Parameter Varying Systems, Grenoble, France, October 2015
- ◆ 54th IEEE Conference on Decision and Control, Osaka, Japan, December 2015
- ◆ 14th IFAC Workshop on Time Delay Systems, Budapest, Hungary, June 2018
- ◆ IFAC Joint Conference: 9th IFAC Symposium on Robust Control Design, and 2nd IFAC Workshop on Linear Parameter Varying Systems Florianópolis, Brazil, September 3-5, 2018

1.e Reviewer for Funding Agencies and Technical Journals

- The Scientific and Technological Research Council of Turkey (TÜBİTAK)
- National Science Foundation USA (NSF)
- Natural Sciences and Engineering Research Council of Canada (NSERC)
- Israel Science Foundation (ISF)
- Australian Research Council (ARC)
- National Research Foundation of South Africa (NRF)
- Research Foundation – Flanders, Belgium (FWO)
- IEEE Transactions on Automatic Control
- IEEE Transactions on Control Systems Technology
- IEEE Transactions on Education

- IEEE/ASME Transactions on Mechatronics
- IEEE Transactions on Neural Networks
- IEEE Communication Letters
- Automatica (Journal of IFAC)
- SIAM Journal of Control and Optimization
- AIAA Journal of Guidance, Control and Dynamics
- ASME Journal of Dynamic Systems Measurement and Control
- Systems & Control Letters
- Mathematics of Control, Signals and Systems
- International Journal of Control
- International Journal of Robust and Nonlinear Control
- Optimal Control Applications & Methods
- Numerical Functional Analysis and Optimization
- International Journal of System Science
- Welding Journal
- Journal of Internet Engineering
- Asian Journal of Control
- Telecommunication Systems

1.f Colloquium Presentations

- University of Minnesota (USA)
- Iowa State University (USA)
- University of Rhode Island (USA)
- Brown University (USA)
- Worcester Polytechnic Institute (USA)
- Ohio State University (USA)
- University of Texas at Dallas (USA)
- University of Illinois, Urbana-Champaign (USA)
- Rensselaer Polytechnic Institute (USA)
- University of California, Los Angeles (USA)
- Northern Illinois Univ., De Kalb (USA)
- Lehigh University (USA)
- McGill University (CA)
- Kyoto University (JP)
- Univ. Tech. de Compiègne (FR)
- Zhejiang University (PRC)
- Middle East Technical University (TR)
- Anadolu University (TR)
- Bilkent University (TR)
- Bogaziçi University (TR)

- Istanbul Tech. University (TR)
- Koç University (TR)
- Sabancı University (TR)

2. Consulting Activity and Visiting Positions Held

- Visiting Researcher at INRIA Rocquencourt, France, January 2008.
- Member of Science and Engineering Database Committee of TÜBİTAK ULAKBİM, for the period 2006—2009 and 2010—2012.
- Member of Science and Engineering Evaluation Committee for the Innovative Project Competition of Hacettepe Üniversitesi Teknokent A.Ş., 2007 and 2008.
- Member of the Evaluation Committee for the Outstanding Achievement Awards of the Turkish Education Foundation, 2007, 2008, 2011.
- TOKTEN Consultant for The Scientific and Technical Research Council of Turkey (TÜBİTAK); August-September, 1994; visited Bogaziçi, Anadolu, and Bilkent Universities, and TÜBİTAK Marmara Research Center.
- NASA/OAI summer faculty fellow at NASA Lewis (now Glenn) Research Center, Advanced Controls Technology Branch; June-August, 1994.

3. Administrative Service at Bilkent University

- Associate Provost, 2014 — present.
- Interim Dean, Faculty of Humanities and Letters, 2015 – 2017.
- Member of Board of Directors, Graduate School of Engineering and Sciences, 2012—2017.
- Member of Engineering Faculty Council 2012—2015.
- Vice-Chair, Dept. of Electrical & Electronics Eng., 2008—2009, and 2011— 2014.
- Member of the Educational Process Coordination Committee, Dept. of Electrical & Electronics Engineering, 2007—2014.
- Member of Graduate Studies Committee, Dept. of Electrical & Electronics Eng., 2006—2014.
- Member of Strategic Planning Committee, Dept. of Electrical & Electronics Eng., 2002—2003.

4. Administrative Service at The Ohio State University

a. Departmental Committees

- Graduate studies committee (member: 1995-1996, chair: 2000-2002)
- Promotion and tenure committee (member: 2001-2002, and 2003-2004)
- Control area committee (member: 1991-2004, chair: 1998-2000)
- Curriculum committee (member: 1998-1999, chair: 1999-2000)
- Graduate recruiting and financial aid committee (member: 1996-1998, chair 2003-04)
- Graduate admissions subcommittee (member: 1992-94; chair: 1994-1997)

b. College or University Committees

- Research and Graduate Council - Graduate School (elected member, representing Engineering Sciences: 2000-2004) served on the Graduate Associate and Fellowship Committee as member in 2000-2001, and chair in 2001-2002.
- Graduate School Fellowship Selection Committee (2001, 2002)

- University Senate Committee on Academic Misconduct (member: 1997-2000)

Academic/Professional Awards and Commendations:

Lumley Research Award, College of Engineering, The Ohio State University, 1994.

Annual Research Accomplishment Award, College of Engineering, The Ohio State University, 1996.

Outstanding Service Award, Automatica—IFAC, 2007.

Outstanding Service Award, IEEE Control Systems Society, 2013.

Outstanding Reviewer of 2012—2013, Automatica—IFAC, 2014.

Distinguished Teacher of the Year Award, Bilkent University, 2014.

IEEE Fellow, 2018