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A. EDUCATION

- Ph.D. in Aeronautics and Astronautics (Dynamics and Control Systems), Purdue University, 1981
- M.E. in Aerospace Engineering, Indian Institute of Science, India, 1976
- B.E. in Electrical Technology, Indian Institute of Science, India, 1974
- B.Sc. in Math, Physics, Chemistry, Andhra University, India, 1971

B. EMPLOYMENT HISTORY

Professor (July 2010 – Present)

Department of Mechanical and Aerospace Engineering, The Ohio State University, Columbus, OH 43210;

Director (Aug 2011-Present)

Distributed Engine Control and Simulation Laboratory, Department of Mechanical and Aerospace Engineering, The Ohio State University, Columbus, OH 43210

Professor (Jan 2005 – June 2010)

Department of Aerospace Engineering, The Ohio State University, Columbus, OH 43210;

Professor (Oct. 1993 – Dec 2004)

Department of Aerospace Engineering and Aviation, The Ohio State University, Columbus, OH 43210

Associate Professor (Sep. 1987 – Sep. 1993)

Department of Aeronautical and Astronautical Engineering, The Ohio State University, Columbus, OH 43210

Associate Professor (June 1985 – Sep. 1987)

Department of Electrical Engineering, The University of Toledo, Toledo, OH 43606

Assistant Professor (Aug. 1981 – May 1985)

Department of Mechanical Engineering, Stevens Institute of Technology, Hoboken, NJ 07030

Research and Teaching Assistant (Aug. 1976 – Feb. 1981)

David Ross Fellowship Holder

School of Aeronautics and Astronautics, Purdue University, W. Lafayette, IN 47907

Other Professional Employment

July 1997 – Sept 1997

Summer Faculty Research Fellow
Wright Labs, Wright Patterson Air Force Base (FIBD)

June 1996 – Aug. 1996

Summer Faculty Research Fellow
Wright Labs, Wright Patterson Air Force Base (FIBA)

June 1988 – Aug. 1988

Summer Faculty Research Fellow
NASA Lewis Research Center

Dec. 1985 – Aug. 1987

Consultant
Lawrence Livermore National Laboratory

June 1982 – Aug. 1982

Summer Faculty Research Fellow
Wright Patterson Air Force Base (FIGC)

Feb. 1981 – Aug. 1981

Consultant
Purdue University

C. SUMMARY OF SCHOLARSHIP, EDUCATION AND SERVICE

Scholarship

Professor Yedavalli has, over the last 36 years of his academic career (1981-present), carried out significant research that has attracted the attention of the professional community nationally and internationally and has impacted the field of dynamics and control. His research has been supported by Industry (Boeing, Goodrich, Intelligent Fiber Optic Systems, Impact Technologies Inc, Luraco Technologies), Federal and State Agencies such as the National Science Foundation, National Aeronautical and Space Administration (Glenn, Langley, and Dryden), the Air Force Research Laboratory, the Army Research Office, Fermi National Laboratory, the Ohio Department of Development, and the Ohio Board of Regents, among others.

Dr. Yedavalli's research spans many aspects of systems level modern control theory with high relevance to various engineering systems' applications. He made noteworthy contributions in

- Robustness and sensitivity issues in linear uncertain dynamical systems in state space framework
- Robust Control Design for uncertain Dynamical Systems using Matrix theory approaches
- Robust Control Analysis and Design Using Ecological Principles
- Distributed Control with Communication Constraints
- Estimation and Fault diagnostics of Propulsion Systems,

- Control of smart structural systems,
- Dynamics and Control of Flexible Structures

with applications to aircraft, spacecraft, automotive, robotic, aerospace propulsion and other mechanical systems control.

He published close to two hundred Journal and Conference papers and Book Chapter articles and presented invited seminars on these topics. He graduated a number of Masters and Ph.Ds, (close to forty) who are all well placed in various Industries and Universities.

Robustness analysis and Robust Control Design: The most significant *personal* technical contributions (as evidenced by **many solo authored papers**) Prof. Yedavalli made are in the area of robust stability analysis and control design for linear state space models with real parameter uncertainty with applications to aerospace and mechanical systems. In this area, his contributions come from the viewpoint of using state space interval parameter techniques. He published these results in many prestigious, high impact journals belonging to societies like IEEE, ASME and AIAA. The papers he published in this area enjoyed high citation and many of the techniques he introduced have been extended by other prominent researchers in this area. The prestigious and competitive ***O.Hugo Schuck Best paper award*** he received by the American Automatic Control Council in 2001 for a paper he published in the 2000 American Control Conference attests to the quality of his research. In addition, he co-edited an IEEE press book in 1990 on “Recent Advances in Robust Control” which still enjoys significant citation. *Yedavalli also authored a graduate level textbook on Robust Control titled: “Robust Control of Uncertain Dynamic Systems: A Linear State Space Approach” which was published by Springer in Jan 2014.* His contributions in this area contributed in his election as a ***Fellow of IEEE (class of 2003)***

Eco-Inspired Stability Analysis and Design for Linear Dynamic Systems: More recently, Dr. Yedavalli embarked on a new area of research in which he is investigating the role of usefulness of qualitative ecological system principles in robustifying quantitative engineering systems. The papers he recently published in the AIAA Journal of Guidance, Control and Dynamics demonstrates the applicability of these fascinating ideas to aerospace flight vehicle control design. Currently Dr. Yedavalli is active in continuing this important research with applications to various engineering systems. The main thrust of this research is to learn from natural systems like ecological systems and understand the features of these systems that impart robustness to these systems and then apply these principles to produce a highly robust engineering system. The most recent research (via his conference papers in the Indian Control Conference, ICC2015 held in Chennai, India and the IEEE Conference on Decision and Control, CDC2015 held in Osaka, Japan and the American Control Conference ACC2016 in Boston, USA) deals with a completely fresh, new approach to design control algorithms based on ecological principles. His contributions in this area played an important role in his election as a ***Fellow of AAAS (class of 2012)***.

Controls Research with Applications to Mechanical and Aerospace Systems: In addition to his pioneering research in the above areas, Yedavalli has made significant contributions (along with his graduate students and other professional research colleagues) in other areas such as H-infinity control design with regional stability constraints, Critical Parameter selection in Flexible Space Structure Control, Robust Eigenstructure Assignment under Uncertainty with applications to Aerospace Flight vehicles, Improved Aircraft Roll Maneuver by Active Wing Deformation with Smart material Actuation, Dynamic Inversion Embedded State Dependent Riccati Equation approach applied to Hypersonic Reusable Launch vehicles, New modeling and control design methods specifically tailored to Flexible and Smart Structural Control problems with Aerospace Applications, Smart Structural Control in Matrix Second Order System Framework, Observer Design in Matrix Second Order Framework, Aeroelastic Flutter Analysis using Matrix Second Order Framework, Ultimate Boundedness Control of linear switched systems with application to Microsatellite Formation Flying problems and Fault Diagnostics and health management of Propulsion Systems. These contributions played a significant role in his election as a ***Fellow of ASME (2008)***

Distributed Control with Communication Constraints: Sampled Data Time Delayed Systems: The research Dr. Yedavalli carried out in this area with applications aircraft engine control, resulted in the Air Force Research

Laboratory (AFRL) awarding their Turbine Engine Simulator equipment to his group at OSU to establish the Distributed Engine Control and Simulation (DECS) Laboratory in the MAE department under the Educational Partnership Agreement (EPA). This agreement is valued in excess of \$2M worth in terms of the equipment and the associated benefits to research and education. This award was given to OSU in the midst of competition from Georgia Tech and University of Cincinnati and other high profile academic institutions.

Current Research with Breakthrough Type Results in the Stability Analysis and Control Design of Linear Systems: The current research (2017-onwards) research results of Prof. Yedavalli on the fundamental subject of stability of linear systems point towards a 'breakthrough' type, having the potential to revolutionize this area, with more potential to pave the way for solving some previously unsolved problems as well as improving on the current control design algorithms. These results have the potential to garner significant attention from the peer community because in this research, Yedavalli is developing a new approach to test the stability of linear dynamic system which would replace the current (several hundred years old) and well established techniques such as the Routh-Hurwitz criterion and Fuller's criterion (which are taught at the Undergraduate level). This new approach possesses many desirable properties like convexity coupled with computational savings which are lacking in the current techniques. In this new research, Yedavalli introduced the concept of 'Transformation Indifference' wherein it is shown that the age old notion of 'eigenvalue invariance' *is not necessary* for determining the Hurwitz stability of a real matrix. These new stability conditions developed by Yedavalli are deemed to be highly useful to solve some robust stability problems that were abandoned as 'tough' problems to solve. The new results, when accepted for publication, would amount to solving the well researched but yet unsolved problem of 'static output feedback stabilization' problem. Thus once the results are accepted by the peer community (which would hopefully happen in an year or so), these results become worthy of appearing in books at Undergraduate level education.

The contributions of Prof. Yedavalli in this area can be leveraged in the likelihood of collaborative research effort between various Universities with his presence at any academic institution playing the leading role. Efforts are underway to materialize this collaborative research at a high scale.

Recently, the paper: R.K.Yedavalli, R.K.Belapurkar: "Application of Wireless Sensor Networks to Aircraft Control and Health Management Systems", *Journal of Control Theory and Applications*, Special Issue: "Wireless Sensor Networks: from Theory to Practice", Vol. 9, No.1, pp. 28-33, February 2011, was declared as the **Top 5 Downloads** of that journal.

Dr. Yedavalli received the prestigious '**Distinguished Alumnus Award**' in 2009 from the Department of Aerospace Engineering of the Indian Institute of Science attesting to his highly visible stature in the national and international peer community. He also was awarded the prestigious and competitive "**Satish Dhawan Chaired Professor (Visiting)**" title by the Indian Institute of Science during his Sabbatical spent at that school in the academic year 2017-2018.

In addition, very recently (in Dec 2017), Yedavalli was named the **recipient of the Platinum Jubilee Award** by the Indian Institute of Science (IISc), Bangalore, India as part of its Platinum Jubilee celebrations in 2017. Presented by the university's Department of Aerospace Engineering, this award honors outstanding IISc alumni who have made significant contributions to the aerospace engineering field.

He is one of only 35 from around 7000 alumni of the IISc's Department of Aerospace Engineering (over the last 75 years) to receive this prestigious honor. This year, IISc's Aerospace Engineering department is ranked 32nd best Aerospace department in the world in ARCW (Shanghai) ranking and the only department in IISc to be ranked in the top 50 in the world. With this award, Yedavalli joins the company of other illustrious alumni of IISc such as Prof. Satya N. Atluri, a Distinguished Professor at Texas Tech U, Prof. Katepalli Sreenivasan, Dean of Engineering at New York University and other luminaries in the engineering field.

Education

With the support of his extensive sponsored research, Dr. Yedavalli graduated several Master's and Ph. D students (including a Post Doctoral researcher) who are all well placed professionally (at Industries like GM, Boeing, P&W and Universities like Cal State, Long Beach). One of his Ph.D graduates, Dr. Praveen Shankar, during his Ph.D tenure with Dr. Yedavalli, upon his nomination, won the prestigious AIAA Foundation's Orville Wright Graduate Student Award in 2006. Another Ph.D graduate, Dr. Rohit Belapurkar (Ph.D, Autumn 2012) was the Winner of few AIAA Student Best paper awards and Grand Prize Winner in the AIAA New Horizons Contest, along with the Best Reviewer award by the International Journal of Systems Science and recipient of an ASME IGTI Scholarship. Another Ph.D graduate Dr. Nagini Devarakonda (Ph.D, Summer 2011) was a semi-finalist in the Student Best paper award contest in the American Control Conference as well as Best Session Presentation award, and was a winner of the Outstanding Achievement award by the WIE section at OSU. Dr. Yedavalli published a graduate level textbook titled: "Robust Control of Uncertain Dynamic Systems: A Linear State Space Approach", in Jan 2014. Currently he is under contract with Wiley for authoring an undergraduaure level textbook on "Aero & Space Flight Vehicle Dynamics and Control" with a publication date of Dec 2018. In addition, he presented a short course on 'Sensitivity of Dynamic Systems' for faculty members at the University of Julia in Maracaibo, Venezuela, presented a short course on 'Robust Control' for AIAA as a member of a team of instructors and presented an invited short course on 'Robust Control of State Space Systems' for IEEE.

Internal and External Professional Service:

Internal to OSU, Dr. Yedavalli has been and continues to be very active in offering his professional service to OSU (at the Departmental, College and University levels) in various leadership roles. **At the University level**, he served as a member of the Senate Fiscal Committee, with an additional active role in the Student Fee Review Subcommittee. **Also at the University level**, he served as a member of the Graduate Council, representing the College of Engineering, with an additional active role as a member of the GS/CSS subcommittee. **Also at the University level**, he served as a member of the University Fellowship Evaluation committee.

At the College level, he already served as the **Chair of the College P&T committee** as well as a prior member of that committee.

At the Department level he has been very active over his long career as a faculty member and these services are given in detail in a separate section later in this CV.

All these leadership experiences, at a large university like OSU, are deemed equivalent to the role of a Chair or Dean of an engineering department/college at any smaller University.

External Professional Service:

- Dr. Yedavalli was invited and currently is serving a second term **as a member of the Honors and Awards committee for the National Level ASME Dynamic Systems and Control Division** to help evaluate and make decisions on the nominees for the Division's highly regarded awards, such as the Oldenberger Medal and Kalman Best paper awards.
- **He also served as the Technical Program Committee Chair for the 2015 ASME Dynamic Systems and Control Conference, held in Columbus, OH, Oct 28-30, 2015.**
- **He organized the technical program by serving as the Chairman of the Technical Program Committee for the 1991 AIAA Guidance, Navigation and Control Conference held in New Orleans, LA.**
- He already served as an Associate Editor for the European Journal of Control (2015-2016), ASME Journal of Dynamic Systems, Measurement and Control (2006-2009), AIAA Journal of Guidance, Control and Dynamics (1992-95) as well as the International Journal of Systems Science (1992- 2012) and is currently

serving as a member of Editorial Board for the International Journal of Aerospace Engineering. He is also a member of the Conference Editorial Board (CEB) for IEEE and ASME. He co-edited an IEEE Press Book on "Recent Advances in Robust Control" in 1990 which enjoys high citation in many research papers. He offered tutorial workshops on "Robust Control" at the 1992 IEEE Conference on Decision and Control and the AIAA GNC Conference and for Ohio Aerospace Institute. He was a member of the technical program committees for the 1992 American Control Conference and IEEE Conference on Control Applications. He served as the Society Review Chairman for the 1993 ACC and 2015 ACC. . He served as a member of the National level AIAA Technical Committee on Guidance, Navigation and Control two times, once during 1989-1992 and again from 2013-2016. He is a member of the IFAC working Group on "Robust Control" and was a member of the IEEE working group on Linear Multivariable Systems. He organized, chaired and co-chaired (and continues to do so) various technical sessions in conferences such as ACC, CDC, CCA and AIAA GNC. He serves as a reviewer for many journals, conferences and NSF (including being a member of different Panels for NSF). He served as a "Guest Editor" for a special issue in the Journal of "Mathematical Problems in Engineering". He was a consultant to the Lawrence Livermore National Laboratory for two years. He organized and offered tutorial workshops on robust control for AIAA, Ohio Aerospace Institute and IEEE. He served as a referee for numerous professional colleagues for their professional advancement. He was an invited plenary speaker at the 2nd Northern Illinois University Conference on Linear Algebra in 1991. He was invited to many selective conferences based on the high citation of his research.

Funded Research

Secured *individually* **close to \$2.5 Million** in sponsorship of research during the professorial career uptill now. In addition, the Turbine Engine Simulation Equipment awarded to Prof. Yedavalli's group at OSU by AFRL under the Educational Partnership Agreement (EPA) in 2011, which later was expanded as Distributed Engine Control and Simulation Laboratory (DECS Lab) , is estimated to be of \$2M value to the AFRL. The equipment itself was valued at \$500K.

Currently leading proposal preparation efforts for an NSF I/UCRC on Center for Controls Technology Advancements for Propulsion Systems (CTAPS) with OSU as the lead institution. Indications are that it is likely to be successful, with active participation assured by Industries such as GE, P&W, UTRC, Rolls Royce, Honeywell, Boeing, Lockheed Martin, and support from federal agencies such as AFRL, NASA Glenn, NAVAIR and others. This effort may yield results in the next two year time frame.

In addition, efforts are underway with proposals being submitted to several funding agencies to garner further research funding in the very near future at increased levels of funding compared to the previous funding record by leveraging enhanced collaborative opportunities and using the new research results of breakthrough nature.

D. HONORS AND AWARDS

Awarded the prestigious and competitive **Platinum Jubilee Award** by the Indian Institute of Science in Dec 2017.

Awarded the prestigious and competitive **Satish Dhawan Chaired Visiting Professorship** by the Indian Institute of Science for his Sabbatical period (2017-2018) there. This highly regarded professorship allowed him to interact with not only the faculty of the Institute but also with the scientists at the Indian Space Research Organization.

Elected **AAAS Fellow** in 2012 for Distinguished Research and Education contributions to the fields of Robust and Distributed Control of mechanical and aerospace systems and for service to multiple professional societies

Awarded the '**Distinguished Alumnus Award**' by the Department of the Aerospace Engineering of the Indian Institute of Science in 2009.

Elected **ASME Fellow** in 2008 for highly cited Research Contributions and Professional Service to ASME.

Elected **IEEE Fellow** in 2003 for contributions to 'parameter robustness analysis of linear state space systems and robust control of linear uncertain systems'.

Was awarded the '**2002 Lumley Research Award**' by the College of Engineering of Ohio State University in recognition of Outstanding Research Accomplishments.

Was awarded the **O.Hugo Schuck Best Paper award** by the American Automatic Control Council for the year 2001 for a paper presented at the 2000 American Control Conference.

Was awarded a **NASA Technical Brief** for the outcome of an SBIR research effort in 2013.

Was Elected as **Associate Fellow of AIAA** in 1991.

Was inducted as a Member of the **International WHO'S WHO** of Professionals in November 1998

Was inducted as a Member of the **Marquis WHO'S WHO in Science and Engineering** in The New Millennium Edition

Invited member of the Selection Committee for the O.Hugo Schuck Best paper award for the American Automatic Control Council (Dec 2006-Jan 2007)

Currently, Invited member of the Honors and Awards Committee for the ASME Dynamic Systems and Control Division.

I. RESEARCH

I-1. Publications

1. Journal Publications

Currently, few papers which appeared in conference proceedings are at various stages of Journal publication cycle. Only those which already appeared in print and are waiting to appear in print (after accepted for publication) are listed below. The gap in Journal publications during the period 2012-2014 was due to the authorship of a graduate level textbook titled “Robust Control of Uncertain Dynamic Systems: A Linear State Space Approach” which was published by Springer in Jan 2014.

J49. M. Pulcherio and M. Illindala and J. Choi and R. Yedavalli: “Robust Microgrid Clustering in a Distribution System with Inverter-Based DERs” *IEEE Transactions on Industry Applications*, Vol 54, #5, Sept-Oct 2018, pp 5152-5162

J48. M. Pulcherio and M. Illindala and R. Yedavalli: “Robust Stability Region of a Microgrid Under Parameter Uncertainty Using Bialternate Sum Matrix Approach” *IEEE Transactions on Power Systems*, Vol 33, #5, September 2018, pp 5553-5562

J47. Sanjib Chowdhury and R.K. Yedavalli: “Vibration of High Speed Helical Geared Shaft Systems mounted on Rigid Bearings” *International Journal of Mechanical Sciences*, Elsevier, On line version available from May 2018.

J46. Tim Seitz and R. K. Yedavalli and O. Macmann and Al Behbahani: “Robust Control of Turbine Engines using Distributed Networks with Multiple Time Delays” *AIAA Journal of Guidance, Control and Dynamics*, 2017.

J45 Tim Seitz and R. K. Yedavalli and Al Behbahani: “Robust Stability Bounds for Multi-Delay Networked Control Systems” *International Journal of Control*, doi: 10.1080/00207179.2017.1293299, Published on line from March 2017.

J44 Sanjib Chowdhury and Rama K. Yedavalli: “Dynamics of low speed geared shaft systems mounted on rigid bearings”, *Journal of Mechanism and Machine Theory*, Vol 112, June 2017, 123-144, Elsevier; On-line copy available from April 2017.

J43 Sanjib Chowdhury and Rama K. Yedavalli: “Dynamics of belt-pulley-shaft systems”, *Journal of Mechanism and Machine Theory*, Vol 98, 2016, 199-215, Elsevier; On-line copy available from Dec 2015.

J42. Nagini Devarakonda and Rama K. Yedavalli, "Determination of Most Desirable Nominal Closed Loop State Space System for Robustness via Qualitative Ecological Principles," *ASME Journal of Dynamic Systems, Measurement and Control*, doi:10.1115/1.4031957, Vol 138, Feb 2016, pp 21001-1 to 10.

- J41. Nagini Devarakonda, Preeti Sar, and Rama K. Yedavalli, "Robust Flight Control Design for Linear Systems with Real Parameter Uncertainty," *Journal of Guidance, Control, and Dynamics*, (2015), accessed October 22, 2015, doi: <http://arc.aiaa.org/doi/abs/10.2514/1.G001182>
- J40. H.H.Huang, R.K.Yedavalli and D. Guenther: "Active Roll Control for Rollover Prevention of Heavy Articulated Vehicles with Multiple Rollover Index Minimization" *Journal of Vehicle System Dynamics*, July 2011
- J39. R.K.Yedavalli, R.K.Belapurkar: "Application of Wireless Sensor Networks to Aircraft Control and Health Management Systems", *Journal of Control Theory and Applications*, Special Issue: "Wireless Sensor Networks: from Theory to Practice", Vol. 9, No.1, pp. 28-33, February 2011
- J38. P. Shankar and R.K. Yedavalli and J.J. Burken :` Adaptive Flight Control using Self Organizing Radial Basis Function Networks", *AIAA Journal of Guidance, Control and Dynamics*, Vol 34, #3, , May-June 2011, pp 783-794.
- J37. R. K. Yedavalli and N. Devarakonda: " Sign Stability of Ecology and its use in Control Design with Aerospace Applications", *AIAA Journal of Guidance, Control and Dynamics*, Vol 33, # 2, Mar-April 2010, pp 333-346
- J36. R.K. Yedavalli, R.K. Belapurkar, and A. Behbahani, "Design of Distributed Engine Control Systems for Stability Under Communication Packet Dropouts", *AIAA Journal of Guidance, Control and Dynamics*, Volume 32, Number 5, Sept-Oct 2009, pp 1544-1549
- J35 R.K.Yedavalli: " Robust Control Design for Linear Systems using an Ecological Sign Stability Approach", *AIAA Journal of Guidance, Control and Dynamics*, Vol 32, # 1, Jan-Feb 2009, pp 348-352
- J34. P. Shankar and R.K. Yedavalli:`Neural Network based Observer for Turbine Engine Parameter Estimation" Proc. IMechE, Part I: *Journal of Systems and Control Engineering*, 2009, Vol 223, #6, pp 821-832
- J33. R. K. Yedavalli: "Necessary and Sufficient Vertex Solutions for Robust Stability Analysis of Families of Linear State Space Systems", *Journal of Continuous, Discrete and Impulsive Systems*, Series B: Algorithms and Applications., Vol. 11, 2004, pp 489-508.
- J32. S. Kwak, G. Washington, and R. K. Yedavalli, "A New Acceleration Feedback Control Based on the Reciprocal State Space Framework Using Smart Materials" *Journal of Sound and Vibration*, Vol. 251, #3 , March 28, 2002, pp 543-557
- J31. S. Kwak, G. Washington, and R. K. Yedavalli, "Acceleration Feedback Based Active And Passive Vibration Control Of Landing Gear Components," American Society of Civil Engineers, *Journal of Aerospace Engineering*, Vol. 15, #1, Jan 2002, pp 1-9
- J30. S. Kwak and R. K. Yedavalli: "New Modeling and Control Design Techniques for Smart Deformable Aircraft Structures", *AIAA Journal of Guidance, Control and Dynamics*, Vol. 24, 2001, pp 805-815

- J29. C.R. Ashokkumar and R. K. Yedavalli, "Time Response Bounds for Linear Uncertain Systems with Structured Uncertainty" *International Journal of Systems Science* Vol. 31, #2, pp177-188, 2000
- J28. A.M. Diwekar and R. K. Yedavalli: "Stability of Matrix Second Order Systems: New Conditions and Perspectives", *IEEE Trans on Automatic Control.*, Sept 1999, Vol. 44, #9, pp1773-1777
- J27. A.M. Diwekar and R. K. Yedavalli, "Robust Controller Design for Matrix Second Order Systems with Structured Uncertainty," *IEEE Transactions on Automatic Control*, Vol. 34, Feb 1999, pp 401-405
- J26. C.R. Ashokkumar and R. K. Yedavalli, "Eigenstructure Perturbation Analysis in Disjointed Domains for Uncertain Systems," *International Journal of Control*, Vol. 67, 1997 pp 887-899
- J25. A.M. Diwekar and R. K. Yedavalli: "Smart Structure Control in Matrix Second Order Form," *Journal of Smart Materials and Structures*, Vol. 5, 1996, pp 429-436
- J24. R. K. Yedavalli and Y. Liu, "H-Infinity Control with Regional Stability Constraints," *Automatica*, Vol. 31, 1995, pp. 611-615
- J23. R. K. Yedavalli, "Flight Control Application of New Stability Robustness Bounds or Linear Uncertain Systems," *AIAA Journal of Guidance, Control and Dynamics*, Vol. 16, Nov.-Dec. 1993, pp. 1032-1037
- J22. Y. Liu and R. K. Yedavalli, "Linear Quadratic Control with Stability Degree Constraints," *Systems & Control Letters*, Vol. 21, 1993, pp. 181-187
- J21. R. K. Yedavalli, "Robust Root Clustering for Linear Uncertain Systems Using Generalized Lyapunov Theory," Special issue on robust control in the journal *Automatica*, January 1993, Vol. 29, pp. 237-240
- J20. R. Wilson, J. R. Cloutier, and R. K. Yedavalli, "Control Design for Robust Eigenstructure Assignment in Linear Uncertain Systems," *IEEE Control Systems Magazine*, Vol. 12, No.5, October 1992, pp. 29-34
- J19. R. K. Yedavalli, "Counterexample to' Perturbation Bounds for Root Clustering of Linear Continuous Time Systems," *International Journal of Systems Science*, Vol. 23, No.4, pp. 661, 1992
- J18. I.V. Haq, R. V. Grandhi and R. K. Yedavalli, "Robustness Measures for Integrated Structural Control Systems". *Journal of Computing Systems in Engineering*, Vol 1., pp.285-292, 1990
- J17. R. K. Yedavalli, "Sufficient Conditions for the Stability of Interconnected Dynamic Systems," *Journal of Information and Design Technologies*, Vol. 15, pp. 133-142, 1989
- J16. S.R. Kolla, R. K. Yedavalli and J.B. Farison, "Robust Stability Bounds on time varying Perturbations for state space models of Linear Discrete Time Systems," *International Journal of Control*, Vol. 50, #1, pp. 151-159, 1989
- J15. K. H. Wei and R. K. Yedavalli, "Robust Stabilizability for Linear Systems with Both Parameter Variations and Unstructured Uncertainty," *IEEE Transactions on Automatic Control*, Vol. 34, pp. 149-156, February 1989

- J14. R.K.Yedavalli, "Robust Control Design for Aerospace Applications", *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 25, #3 pp. 314-324, May 1989.
- J13. R. K. Yedavalli and S.R. Kolla, "Stability Analysis of Linear Time Varying Systems," *International Journal of Systems Science*, Vol. 19, No.9, 1988, pp. 1853-1858
- J12. K. H. Wei and R. K. Yedavalli, "Invariance of Strict Hurwitz Property for Uncertain Polynomials with Dependent Coefficients," *IEEE Transactions on Automatic Control*, Vol. AC- 32, October 1987, pp. 907-909
- J11. R. K. Yedavalli and Z. Liang, "Reduced Conservatism in the Ultimate Boundedness Control of Mismatched Uncertain Linear Systems," *ASME Journal of Dynamic Systems, Measurement and Control*, Vol. 109, No. 1, March 1987, pp. 1-6
- J10. R. K. Yedavalli and Z. Liang, "Aircraft Control Design Using Improved Time Domain Stability Robustness Bounds," *AIAA Journal of Guidance, Control and Dynamics*, November-December 1986, pp. 710-714
- J9. R. K. Yedavalli and Z. Liang, "Reduced Conservatism in Stability Robustness Bounds by State Transformation," *IEEE Transactions on Automatic Control*, Vol. AC-31, September 1986, pp. 863-865
- J8. R. K. Yedavalli, "Stability Analysis of Interval Matrices:-Another Sufficient Condition," *The International Journal of Control*, Vol. 43, March 1986, pp. 767-772
- J7. R. K. Yedavalli, "Perturbation Bounds for Robust Stability in Linear State Space Models," *The International Journal of Control*, Vol. 42, December 1985, pp. 1507-1517
- J6. R. K. Yedavalli, S.S. Banda, and D. B. Ridgely, "Time Domain Stability Robustness Measures for Linear Regulators," *AIAA Journal of Guidance, Control and Dynamics*, July-August 1985, pp. 520-525
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- B2. R.K. Yedavalli, "Extension of Gutman and Jury's Theory of Root Clustering to Perturbed Matrices," in "Fundamentals of Discrete Time Systems (A Tribute to Professor E.I. Jury)", TSI Press, 1993. Eds: Mo Jamshidi, M. Mansour, Brian D.O. Anderson & N.K. Bose, pp. 457-464
- B3. R.K. Yedavalli, "A Non-conservative Kronecker Based Theory for Robust Root Clustering of Linear State Space Models with Real Norm Bounded Uncertainty," a chapter in the book "Robustness of Dynamic Systems with Parameter Uncertainties," Birkhauser. Eds: M. Mansour, S. Balemi, and Truol, 1992 ed, pp. 155-164
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C144. Rama K. Yedavalli: "Conditions for Hurwitz Stability/Instability of a Real Matrix via its Sign Pattern with a Necessary and Sufficient Condition for Magnitude Independent Stability" Proceedings of the IFAC Conference on Advances in Control and Optimization of Dynamic Systems (ACODS2018), Hyderabad, India, Feb 2018

C143. M. Pulcherio, A. Kidder, M.S. Illindala and Rama K. Yedavalli: "An Eco Inspired Control Strategy for DC Microgrids" 2018 IEEE Power & Energy Conference at Illinois (PECI), Champaign, IL pp 1-5, Jan 2018

C142. Rama K. Yedavalli: "Automotive Vehicle Stability Analysis With Ranking of Stabilizing Control Laws using the Sign Structure of its Stability Derivatives and Closed Loop Dynamics" Proceedings of the ISTVS 8th Americas Regional Conference, Detroit, MI, Sept 12-14, 2016.

C141. Rama K. Yedavalli: "Analysis of Hurwitz Stability/Instability of a Real Matrix via the Concepts of Qualitative Determinant and Signature of a Matrix", Proceedings of the American Control Conference, Boston, July 6-8, 2016.

C140. Jonathan Kratz and R.K.Yedavalli: “Robust Control of Uncertain Linear Input-Delayed Sampled Data System Through Use of Optimization Scheme and Robust Stability Bound”, Proceedings of the AIAA SciTech Conference 2016, San Diego, CA, Jan 2016

C139. R.K.Yedavalli: “ A Convexity Based Necessary and Sufficient Condition for the Hurwitz Stability of a Real Matrix using its Elemental Sign Structure and Qualitative Determinant Concept”

Proceedings of the IEEE Conference on Decision and Control, Osaka, Japan, Dec 15-18, 2015

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C137. R.K. Yedavalli : “Security and Vulnerability in the Stabilization of Networks of Controlled Dynamical Systems via Robustness Framework” Proceedings of the American Control Conference, Chicago, IL , July 1-3, 2015

C136. R.K. Yedavalli: “A New, Necessary and Sufficient Vertex Solution for Robust Stability Check of Linear Interval Parameter Matrix Families” Proceedings of the American Control Conference, Chicago, IL, July 1-3, 2015

C135. R.K. Yedavalli and N. Devarakonda : “Qualitative Sign Instability of Linear State Space Systems via Ecological Principles” Proceedings of the IEEE First Indian Control Conference, Chennai, India, Jan 5-7, 2015, pp 80-85

C134. R.K. Yedavalli : “A Convexity Promoting Sufficient Condition for Testing the Stability of a Matrix via Qualitative Ecological Principles” Proceedings of the IEEE First Indian Control Conference, Chennai, India, Jan 5-7, 2015, pp 500-505

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- C38. R.K. Yedavalli and Y. Liu: "Active Suspensions Control Design for Optimal Road Roughness Isolation and Ride Comfort," Proceedings of the 1994 American Control Conference, June 1994, pp. 1212-1213.
- C37. Y. Liu and R K. Yedavalli: "H-Infinity Control with Regional Pole Constraints," Proceedings of the 1993 American Control Conference, June 1993, pp. 2772-2776 .
- C36. P. Dorato and R.K. Yedavalli (**invited paper**), "Applications of Robust Control Theory Educational Implications," Proceedings of the 1992 AIAA Guidance, Navigation and Control Conference, Hilton Head, SC, August 1992, pp. 1232-1238.
- C35. R K. Yedavalli: "A Kronecker Based Theory for Robust Root Clustering of Linear State Space Models with Real Parameter Uncertainty," Proceedings of the 1993 American Control Conference, June 1993, pp. 2755-2759.
- C34. R.F. Wilson, and J.R. Cloutier and R K. Yedavalli: "Lyapunov Constrained Eigenstructure Assignment for the Design of Robust Mode-Decoupled Roll-Yaw Missile Autopilots" Proceedings of the 1st IEEE Conference on Control Applications, Dayton, OH, Sept 13-16, 1992, pp 994-999.

C33. R. K. Yedavalli: "Aircraft Ride Quality Controller Design Using New Robust Root Clustering Theory", Proceeding of the 1992 AIAA Guidance, Navigation and Control Conference, Hilton Head, SC, August 1992, pp. 477-485.

C32. R. K. Yedavalli: "Extension of Gutman and Jury, s Theory of Matrix Root Clustering to Perturbed Matrices," Proceedings of the Symposium on Fundamentals of Discrete Time Systems held in honor of Prof. E.I. Jury, Chicago, IL, June 1992, pp. 457-485.

C31. R.K. Yedavalli, "A Generalized Lyapunov Theory for Robust Root Clustering of Linear State Space Models with Real Parameter Uncertainty," Proceedings of the 1992 American Control Conference; Chicago, IL, June 1992. pp. 89-90

C30. R. Wilson, J. Cloutier and R.K. Yedavalli, **(invited paper)**, "Control Design for Robust Eigenstructure Assignment in Linear Uncertain Systems," Proceedings of the 1991 IEEE Conference on Decision and Control; Brighton, England, December 1991. pp. 2982-2987.

C29. R.K. Yedavalli, "New, Non-conservative Stability Robustness Bounds for Linear State Space Models with Real Parameter Variations," Proceedings of the AIAA Guidance, Navigation and Control Conference, New Orleans, LA; pp. 1501-1502, August 1991.

C28. Y. Liu, R. K. Yedavalli and P. Dorato, "Simultaneous Stabilization Under Unstructured Uncertainty: Two Nominal Plant Case", Proceedings of the 29th IEEE Conference on Decision and Control, Honolulu, HI December 5-7, 1990.

C27. G. Gu and R. K. Yedavalli, "Robust Stability of Type L' Feedback Systems", Proceedings of the 29th IEEE Conference on Decision and Control, Honolulu, HI December 5- 7, 1990.

C26. R. K. Yedavalli, "A Necessary and Sufficient Condition for the Positivity of a Polynomial in several real variables over a Hyperrectangle" Proceedings of the 28th IEEE Conference on Decision and Control, Tampa, FL, pp1872-1873

C25. R.K. Yedavalli **(invited paper)**, "Measures of Stability Robustness for Linear Systems with Structured Uncertainty," Proceedings of the International Workshop on "Robustness in Identification and Control" Torino, Italy, June 1988

C24. R.K. Yedavalli and K.H. Wei, "On Stabilization of Large Scale Systems with Reduced Order Compensators," Proceedings of the 1988 AIAA Guidance and Control Conference, Minneapolis, MN, August 1988, pp. 222-225.

C23. K.H. Wei and R.K. Yedavalli **(invited paper)**, "Simultaneous Stabilization of Some Non-Minimum Phase Linear Uncertain Systems," Proceedings of the IMACS Conference on Scientific Computation, Paris, France, July 1988.

C22. R.K. Yedavalli **(invited paper)**, "Stability Robustness Measures Under Dependent Uncertainty," Proceedings of the 1988 American Control Conference, Atlanta, GA, June 1988, pp. 820-823.

C21. K.H. Wei and R.K. Yedavalli **(invited paper)**, "Robust Stabilizability for Linear Systems with both Parameter Variation and Unstructured Uncertainty," Proceedings of the 1987 IEEE Conference on Decision and Control, December 1987, pp. 2082-2087

C20. R.K.Yedavalli, "Robust Control Design for Linear Systems with Structured Uncertainty," Proceedings of the 10th IFAC World Congress, Munich, West Germany, July 1987, pp. 263-268.

C19. R.K.Yedavalli (**invited paper**), "Robust Stabilization under Mode Truncation and Parameter Variations," Proceedings of the 1987 American Control Conference, Minneapolis, MN, June 1987, pp. 490-495.

C18. R.K. Yedavalli (**invited paper**), "Robust Stabilization of Linear Interval Systems--Polynomials vs. Matrix Approach," Proceedings of the 1987 American Control Conference, Minneapolis, MN, June 1987, pp. 1579-1583.

C17. R.K. Yedavalli (**invited paper**), "Dynamic Compensator Design for Robust Stability of Linear Uncertain Systems," Proceedings of the 1986 IEEE Conference on Decision and Controls, Athens, Greece, December 1986, pp. 34-36.

C16. R.K.Yedavalli, "Linear Control Design for Guaranteed Stability of Uncertain Linear Systems," Proceedings of the 1986 American Control Conference, Seattle, W A, June 1986, pp. 990-992

C15. R.K.Yedavalli, "Robust Control Design for the Vibration Suppression of Large Space Structures," Proceedings of the 1986 Vibration Damping II Workshop, March 5- 7, 1986, Las Vegas, NV, pp. EA-12.

C14. R.K.Yedavalli and Z. Liang (**invited paper**), "Reduced Conservatism in Stability Robustness Bounds by State Transformation," Proceedings of the 1985 IEEE Conference on Decision and Control, Fort Lauderdale, FL, December 1985, pp. 673-678

C13. R.K. Yedavalli and Z. Liang, "Reduced Conservatism in Time Domain Stability Robustness Bounds by State Transformation Application to Aircraft Control," Proceedings of the AIAA Guidance and Control Conference, August 1985, pp. 467-472

C12. R.K. Yedavalli (**invited paper**), "Time Domain Control Design for Robust Stability of Linear Regulators: Application to Aircraft Control," Proceedings of the 1985 American Control Conference, Boston, MA, June 1985, pp. 914-919

C11. R.K. Yedavalli, "Time Domain Robust Control Design for Linear Quadratic Regulators by Perturbation Bound Analysis," Proceedings of the IF AC Workshop on Model Error Concepts and Compensation, Boston, MA, June 17-18, 1985 R.E. Skelton and D.H. Owens, eds; pp. 129-135

C10. Z. Liang and R.K. Yedavalli, "Reduced Conservatism in the Ultimate Boundedness Control of Mismatched Uncertain Linear Systems," Proceedings of the 1985 American Control Conference, Boston, MA, June 1985, pp.443-449

C9. R.K. Yedavalli (**invited paper**), "Analysis of Robust Stability and Regulation of Large Space Structures," Proceedings of the 19th Annual Conference on Information Sciences and Systems, March 1985, pp. 190-193

C8. R.K. Yedavalli, "Time Domain Robustness Analysis for Linear Regulators," Proceedings of the 1984 American Control Conference, San Diego, CA, June 1984, pp. 975-980

C7. R.K. Yedavalli, "Robustness Analysis in the Control of Flexible Robot Manipulators," Proceedings of the 1984 Conference on Intelligent Systems and Machines, Rochester, MI, March 1984, pp. 244-247 .

C6. R.K. Yedavalli, "Time Domain Design of Robust Controllers for Linear Regulators," Proceedings of the 21st Annual Allerton Conference on Communications, Control and Computing, October 1983, pp. 756- 757.

C5. R.K. Yedavalli, S.S. Banda and D.B. Ridgely, "Time Domain Stability Robustness Analysis for Large Scale LQG Regulators," Proceedings of the AIAA Guidance and Control Conference, 1983, pp. 815-822.

C4. R.K. Yedavalli, "Critical Parameter Selection in the Vibration Suppression Problem of Large Flexible Space Structures," Proceedings of the AIAA Guidance and Control Conference, San Diego, CA, 1982, pp. 495-499

C3. R.K. Yedavalli, "Sensitivity Analysis for Critical Parameter Selection in Large Scale LQG Regulators," Proceedings of the 16th Annual Conference on Information Sciences and Systems, Princeton, March 1982, pp.465-469

C2 R.E. Skelton and R.K. Yedavalli, "Modal Cost Analysis of Flexible Space Structures with Uncertain Modal Data," Proceedings of the 19th IEEE Conference on Decision and Control, 1980, pp. 792-794

C1. R.K. Yedavalli and R.E. Skelton, "Control Design for Parameter Sensitivity Reduction in Linear Regulators," Proceedings of the 18th Allerton Conference on Communication, Control and Computing, 1980, pp. 414-423

3. Technical Reports

- T1. R.K.Yedavalli: "New Control Design Techniques Tailored to Smart Structural Systems"., AFOSR Final Report for Contract # F 333615-97-3207 for the period 5/5/97 to 6/5/98., Nov '98., Published as AFRL technical report AFRL-VA-WP-TR-1998-3080.
- T2. R.K.Yedavalli (with student Kwak): "New Control Design Techniques Tailored to Smart Structural Systems" final report for AFOSR Contract # F 33615-97 -3 207, Nov ' 98. Published as AFRL- VA - WP -TR - 1998-3080.
- T3. R.K. Yedavalli (with students Liu, Ashokkumar), "Robust Control with Regional Pole Constraints for Aerospace Applications," final report for NASA Langley Research Center Grant #NAG-I-1164; 1993.
- T4. R.K. Yedavalli (with student Y. Liu), "Robust Stability and performance for Linear Systems with Structured and Unstructured Uncertainties", final report for AFOSR Contract # F33615-88-C-3603, June 1990. AFW AL- TR-90-3039.
- T5. R.K. Yedavalli: (with student Steve Julian): "Robust Control Design for Advanced Fighter Aircraft," final report for McDonnell Douglas Aircraft Company, OSU Project #EES-1452, 1990.
- T6. R.K. Yedavalli (with post-doctoral research associate K.H. Wei), "Robust Control Design for Linear Uncertain Systems," final report for AFOSR Contract No. F33615-86-K-3611, June 1988.

- T7. R.K. Yedavalli (with student S.R. Kolla), "Control Design for Robust Stability in Linear Regulators: Applications to Aerospace Flight Control," Final Report for NASA Langley Research Center, Grant No. NAG-I-578, July 1986.
- T8. R.K. Yedavalli (with student z. Liang), "Time Domain Design of Robust Controllers for LQG Regulators: Applications to Larger Space Structures," Final Report to AFOSR, Contract No. F33615-84-K3606, AFW AL TR-3045.
- T9. R.K. Yedavalli (with students R.N. Shanbhag and J. Irudayasamy), "Time Domain Analysis and Synthesis of Robust Controllers for Large Scale LQG Regulators," Final Report, AFOSR Grant No.83-0139, 1983.
- T10. R.K. Yedavalli, "Time Domain Analysis and Synthesis of Robust Controllers for Large Scale LQG Regulators," Final Report, AFOSR Summer Faculty Research Program, Summer 1982.

4. Presentations

a. Plenary/Semi-Plenary and Special Invited Presentations:

- Was invited to deliver a Plenary talk at the second Northern Illinois University Conference on Linear Algebra and applications in May 1991.
- Presented a Special Invited Seminar (semi-plenary type) on 'Robust Control of Aerospace Systems' at the International Conference on Advances in Control and Optimization of Dynamic Systems (ACODS'07), in Bangalore, India on Feb 2nd, 2007.
- Presented a Special Invited Seminar (semi-plenary type) on 'Robust Control of Aerospace Systems in Linear State Space Framework' at the 7th Annual Workshop of IFAC/ACDOS Society on "Advances and Success Stories of Robust and Adaptive Control" held at the Indian Institute of Science, Bangalore, India, Sept 8-9, 2017.

b. Conference and Workshop Presentations

- P1. R.K.Yedavalli: "Aerospace Controls Research at Ohio State", presented at the SAE Guidance and Control Technical Committee meeting, Williamsburg, VA, Oct 2006.
- P2. R.K.Yedavalli: "Robust Estimation of Health Parameters for Turbine Engines with Uncertain Model Data", paper presented at the Turbine Engine Technology Symposium in Dayton, OH ,Sept 2006
- P3. R.K.Yedavalli: "Improved Drug Delivery Schedule for Cancer Chemotherapy Models with Uncertain Data" , Paper presented at the International Conference for Mathematics in Biology and Medicine (Annual Meeting for the Society for Mathematical Biology), Ann Arbor, MI, July, 2004.
- P4. R.K.Yedavalli: "New Approaches for Flight Control and Stability Analysis of Morphing Aircraft and Adaptive Structures", Paper presented at the Engineered Adaptive Structures IV Conference, Banff, CA, July, 2004.
- P5. I.Haq, R. Grandhi and R. K. Yedavalli, "Robustness Measures for Integrated Structure/Control Systems", presented at the 1990 AIAA Guidance & Control Conference; Portland, OR, August 20-22, 1990.
- P6. R. K. Yedavalli, "Non-conservative Stability Robustness Measures for Linear Interval Parameter Systems", presented at the Conference on "New Trends in Systems Theory" at Genoa, Italy, July 9-11, 1990.

- P7. R. K. Yedavalli, "A Necessary and Sufficient Condition for the Positivity of a Polynomial in Several Real Variables", presented at the IEEE Conference on Decision and Control; Tampa, FL, December 1989.
- P8. R.K. Yedavalli (**invited paper**), "Necessary and Sufficient Condition for the Stability of Interval Matrices," Presented at the 1st IEEE Conference on Systems Engineering, Dayton, OH, August 1989
- P9. R.K. Yedavalli (**invited paper**), "On Measures of Stability Robustness for Linear State Space Systems with Real Parameter Perturbations: A Perspective," Presented at the 1989 American Control Conference, Pittsburgh, PA, June 1989.
- P10. R.K. Yedavalli (**invited paper**), "On Necessary and Sufficient Conditions for the Stability of Interval Matrices," Presented at the SIAM Conference on "Control in the 1990s," San Francisco, CA, May 1989.
- P11. R.K. Yedavalli (**invited paper**), "Robust Control of Linear Systems with Combined Structured and Unstructured Uncertainty," presented at the IEEE Conference on Decision and Control, Austin, TX, December 1988.
- P12. R.K. Yedavalli and R.E. Skelton, "Robust Covariance Control for Linear Uncertain Systems," presented at the ASME Winter Annual Meeting, Chicago, IL, November-December 1988.
- P13. R.K. Yedavalli, "Robustness Issues in Structural Control Problems," presented at the ASCE Annual Convention, St. Louis, MO, October 1988.
- P14. S.R. Kolla, J.B. Farison and R.K. Yedavalli, "State Space Model Perturbation Bounds for Robust Stability of Linear Discrete Time Systems," presented at the 31st Midwest Symposium on Circuits and Systems, St. Louis, MO, August 1988.
- P15. R.K. Yedavalli (**invited paper**), "Stability Robustness Measures for Linear Uncertain Systems," presented at the International Workshop on "Robustness in Identification and Control, Torino, Italy, June 1988.
- P16. R.K. Yedavalli (**invited paper**), "Robust Stabilization for Linear Systems with Structured Uncertainty," presented at the IF AC Working Group Meeting on "Robust Control," Tegernsee, West Germany, July 1987.
- P17. K.H. Wei and R.K. Yedavalli, "Robust Stabilization of Linear Uncertain Systems," presented at the Fifth Annual Ohio State University Controls Workshop, April, 1987.
- P18. R.K. Yedavalli (**invited paper**), "Robust Nonlinear Computed Torque Control for Robot Manipulators", presented at the NSF Engineering Foundation Workshop on "Qualitative Methods in Nonlinear Dynamics," Henniker, NH, June 1986.
- P19. R.K. Yedavalli, "Robust Stabilization and Regulation in Linear Systems with Structured Uncertainty," presented at the Third JIAPP Workshop on Aerospace Controls -I, NASA Lewis Research Center, Cleveland, OH, November 1985.
- P20. R.K. Yedavalli and S.S. Banda, "Robust Stability and Regulation in the Control of Large Space Structures," presented at the AIAA Guidance and Control Conference, Snowmass, CO, August 1985, Paper No. AIAA- 85-1969-CP
- P21. R.K. Yedavalli, "Stability Analysis of Interval Matrices--Another Sufficient Condition," second SIAM Conference on Applied Linear Algebra, April 29 -May 2, 1985, Raleigh, NC.

c. Invited Workshop Presentations

- 11. Presented an Invited Seminar on 'Robust Estimation and Fault Detection in Turbine Engines with Uncertain Model Data and Failures' at the United Technology Center of Pratt and Whitney Engine company in Hartford, CT on Feb 22nd, 2007.
- 12. Presented two Invited Seminars, one for the entire Engineering school and one for the Aerospace

- Engineering Department at the Indian Institute of Technology, Mumbai, India on Jan 29th, 2007.
- I3. Was an Invited participant in the International workshop on Robust Control held at Ascona, Switzerland in April 1992 organized by Prof. M. Mansour of ETH. Was awarded travel and honorarium.
 - I4. Was an Invited participant in the NSF sponsored International Workshop on Robust Control organized by Prof. S.P. Bhattacharyya at San Antonio, Texas in March 1991. Was awarded travel and honorarium.
 - I5. Was an Invited participant in the "International workshop on Robustness in Identification and Control" with a select group of researchers in that technical area organized by Prof. B.R. Barmish and Prof. M. Milanese at Turin, Italy in June 1988. Was awarded travel and honorarium.
 - I6. Was an Invited participant in the IFAC workshop on "Robust Control" with a very select group of researchers in the robustness area organized by Prof. Jurgen Ackermann at Tegernsee, Germany in 1987. Chaired a session and presented a paper there.

d. Invited Seminars

- S1. Columbia University, April 1982
- S2. Madison, NJ (IEEE Control Systems Society Seminar), October 1982
- S3. Texas A&M University, July 1984
- S4. Drexel University, April 1985
- S5. University of Michigan, October 1985
- S6. Wright State University (Dayton IEEE Control Systems Society Seminar), February 1987
- S7. Wright State University, May 1988
- S8. The Ohio State University, May 1987, October 1987 and November 1987
- S9. University of Washington, May 1989
- S10. University of Cincinnati, April 1990
- S11. Wayne State University, March, 1994
- S12. University of Toledo, April 1999
- S13. Rensselaer Polytechnic Institute, May 2005
- S14. Wayne State University, May 2005
- S15. Purdue University, Oct 2005
- S16. Oklahoma State University, 2012
- S17. University of Kansas, 2012
- S18. Drexel University, 2013
- S19. University of Buffalo, Oct 2016
- S20. Syracuse University, 2016
- S21. Texas A&M University, Dec 2017
- S22. Texas Tech, Dec 2017
- S23. University of California, San Diego, April 2018
- S24. Carnegie Mellon University, Nov 2018

5. Editorship

Served as a Technical Associate Editor for the European Journal of Control (2015-2016)

Serving as a Technical Associate Editor for the International Journal of Aerospace Engineering (from March 2010).

Served as a Technical Associate Editor for the ASME Journal of Dynamic Systems, Measurement and Control (2006-2012); Selected as Temporary Editor-in-Chief for handling the paper of Current Editor-in-Chief.

Served as a Technical Associate Editor for the International Journal of Systems Science, 1992-2012

Served as a Technical Associate Editor for the AIAA Journal of Guidance, Control, and Dynamics; 1992-1995.

Co-editor for an IEEE Press Book on "Recent Advances in Robust Control," (with Prof. P. Dorato of the University of New Mexico), 1990, QA 402.3 R424.

Serving as a member of the CEB (Conference Editorial Board) of the IEEE Control Systems Society (Invited in 1996).

Served as a member of the CEB (Conference Editorial Board) of the ASME Dynamic Systems and Control Division (Invited in 2006).

6. Funded Research

<u>Funding Agency</u>	<u>Funding Amount</u>
AFRL/WPAFB/AFOSR* ¹	\$780K
ARO	\$240K
NASA Langley	\$200K
NASA Dryden	\$85K
NASA Glenn* ²	\$125K
NASA/USRA(Education)	\$225K
DAGSI	\$120K
NSF* ³	\$50K
FNAL	\$95K
INDUSTRY* ⁴	\$480K
OBOR/OSU	\$25K
Total Amount	> \$2.4 Million

*¹ – Includes participation as a Co-PI in a \$3M contract for 3 years from AFRL. This amount excludes the EPA described above.

*² – personal share in a contract exceeding \$4M for 1 year from NASA Glenn.

*³ – More proposals pending/under review

*⁴ – Boeing, Goodrich, IFOS, Impact, Luraco (SBIR/STTR)

A chronological account of the funding history is given below.

June 1983- Sept. 1983

Awarded a \$12,000 Mini Grant by AFOSR for research on robust control design for large flexible structures. Research performed is applicable to the control of flexible robot manipulators.

May 1984- Aug. 1985	Awarded a <u>\$47,000 contract</u> by WPAFB for research on robustness analysis and design of LQG regulators with applications to large space structures. Research extendable to the control of flexible robot manipulators.
June 1986- June 1988	Awarded a <u>\$39,564 contract</u> by NASA Langley Research Center for research on robust control with application to aircraft control
June 1986- June 1988	Awarded a <u>\$60,056 contract</u> by WPAFB for research on robust control design for uncertain systems.
Sept. 1986- Sept. 1987	Awarded a <u>\$9,000 Research Challenge Grant</u> , of the University of Toledo, by the Ohio Board of Regents (OBOR) for research on the control of robot manipulators.
June 1988 -Sept. 1989	Awarded a <u>\$16,700 Research Challenge Seed Grant</u> at OSU for research on control of flexible robot manipulators.
June 1988- June 1990	Awarded a <u>\$70,427 research contract</u> by WPAFB for research on robust control.
June 1989- June 1992	Awarded NASAIUSRA Senior design project, <u>\$75,000 (for 3 years)</u> (Dr. H. Oz, PI, R.K. Yedavalli, Co-PI)
March 1990-Dec1990	Awarded a <u>\$15,560 research project</u> by McDonnell Aircraft Company for robust control design for advanced fighter.
Aug. 1990 -July 1991	Awarded a <u>\$45,568 research grant</u> by NASA Langley for research on robust control.
July 1991- Dec. 1992	Awarded <u>\$84,003 research grant</u> by NASA Langley for research on robust control
Jan. 1993- Sept. 1993	Awarded <u>\$30,000 research grant</u> by NASA Langley for research on robust control
Oct. 1994- June 1995	Awarded <u>\$15,000 Research Seed Grant</u> at OSU from IVHS-OSU Center (Center for Intelligent Vehicle and Highway Systems) for research on Curve Speed Alert in IVHS framework
April 1997-April 1998	Awarded <u>\$25,000 research grant</u> by AFOSR for research on Control Design tailored to Smart Structural Systems
Oct 1997- Sept 2000	Awarded <u>\$65,000</u> under DAGSI Fellowship
April 1999- Sept 2000	Awarded <u>\$64,122</u> under the AFRL Inter Personnel Agreement (IPA)

Jan 2001- Dec 2001	Awarded <u>\$50,953</u> under the AFRL Inter Personnel Agreement (IPA)
Sept 2001- Sept 2007	Awarded <u>\$296,364</u> from AFRL as a Co PI of the Collaborative Center of Control Science
April 2004-Sept 2004	Awarded <u>\$10,000</u> from AFRL/PR and UTC for research On Turbine Engine Control and Health Management
Nov 2004-Oct 2005	Awarded <u>\$35,000</u> by NASA Dryden for research on Stability Robustness Guarantees for Advanced Flight Controllers
Nov 2005- Dec 2006	Awarded <u>\$50,000</u> NASA Dryden for research on Stability Robustness Guarantees for Advanced Flight Controllers
May 2005-Aug 2006	Awarded <u>\$122,809</u> by NASA Glenn for research on Intelligent Propulsion Systems
Sept 2007-March 2009	Awarded <u>\$50,000</u> by NSF SGER Grant for Eco-Inspired Robust Control Design
Sept 2008-May 2009	Awarded <u>\$38,000</u> by Intelligent Fiber Optic Systems for Research on Stability and Performance of Turbine Engines Under Distributed Control
Jan 2010- Dec 2010	Awarded <u>\$75,000</u> by Goodrich Engine Control Systems for Distributed Engine Control with Communication Constraints
Sept 2010- Aug 2012	Awarded <u>\$95,000</u> from Fermi National Laboratory for research On Reliability Analysis of RF Accelerator Driven Systems
Sept 2010- Dec 2011	Awarded <u>\$15,000</u> from Impact Technologies for Distributed Engine Control Analytical Verification & Validation Tools
Jan 2011- Dec 2011	Awarded <u>\$97,600</u> from Goodrich Engine Controls for research On Turbine Engine Control under Communication Constraints
Mar 2011-Dec 2011	Awarded <u>\$33,000</u> from Luraco Technologies Inc for research On Commercial Engine Technology Insertion (STTR)
Apr 2012-Mar 2013	Awarded <u>\$101,702</u> from Triumph (Formerly Goodrich) Engine Control Systems.
Jan 2014- Aug 2014	Awarded <u>\$50,000</u> from Tennessee State University as part of Collaborative Research under the TSU/OSU HBCU program

Sept 2015- Dec 2015

Awarded \$33,000 from Air Force Research Laboratory for Research on Robust Control Design for Aircraft Thermal Management.

April 2014- April 2017

Awarded about \$65,000 under the competitive DAGSI Fellowship For support of a Ph.D student

More funding expected out of pending/future proposals with NSF, NASA, ARMY, AFOSR and Industry.

One major aspect of Prof. Yedavalli's research funding history is that he had research funding almost continuously throughout his professorial career. In addition, he recently expanded the research profile of the department by securing considerable Industry sponsorship (like Goodrich, Luraco, IFOS) and also by varied sources (Fermi National Labs).

7. Graduate Student Advising

Ph.D students Supported/Advised and Graduated:

Timothy Seitz (Ph.D, Spring 2017) (Currently employed by Transportation Research Center, Columbus, OH)

Sanjib Chowdhury (Ph.D Spring 2013) (Currently employed by Cummins, IN)

Rohit Belapurkar (Ph.D, Autumn 2012) (**Winner of few AIAA Student Best paper awards and Grand Prize Winner in the AIAA New Horizons Contest**)

Nagini Devarakonda (**Semi-finalist in the Student Best paper award contest in the American Control Conference as well as Best Session Presentation award**, Currently employed by GM)

Wenfei Li (Currently employed by OSU Mansfield campus)

Hsun-Hsuan Huang (Currently employed by a GM Contractor)

Praveen Shankar (**Winner of the Prestigious AIAA Orville Wright Graduate Student Award**, Currently Associate Professor at California State University, Long Beach, CA)

S. Kwak (Currently Employed by Pratt & Whitney, CT)

Y.W. Tseng (Currently a faculty member in Taiwan)

Anjali Diwekar (Currently employed by NCR)

CRAshokkumar (Currently employed in India)

Yong Liu (Currently employed by Boeing, CA)

M.S. Students Supported/Advised and Graduated:

Jonathan Kratz (M.S 2015) (Currently a researcher employed at NASA Glenn)

Jubal Kurudamannil (M.S 2014)

Rohan Chandravarkar (M.S, 2012)

Preethi Sar (M.S 2012) (Later joined Carnegie Mellon University for her Ph.D)

Charles Ruoff (M.S, 2012)

Sampriti Bhattacharyya (M.S. 2012) (Later graduated with a Ph.D from MIT, Named Forbes under 30 Entrepreneurs)

Ketan Dande (2012)

Deepak Saluru (2012)

Wenfei Li

Rohit Belapurkar

Joanna Kachel

Majid Siddiqui

Aromal Lilly

Dale Burnham

M.Jung

H. Ikehata

S. Starin

A. Brahma

L. Slonksnes

J.S. Julian

Bruce Purcel

George Hassoun

Ahmed Farhoud

J. Irudayasamy

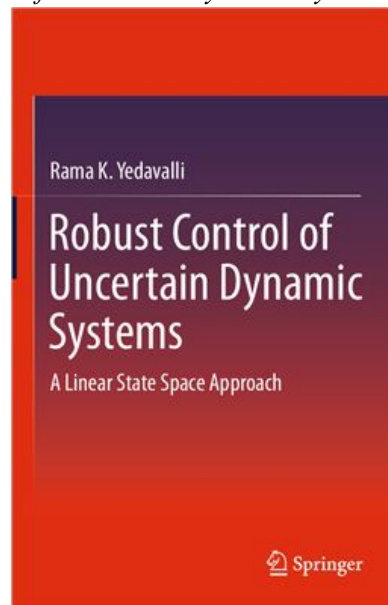
Supervised a Post-Doctoral Research Associate Dr. K. Wei and Co-advised two Doctoral graduates S.R. Kolla and Z. Liang.

All these graduates are well placed and are positively contributing to the society.

II. TEACHING AND EDUCATION

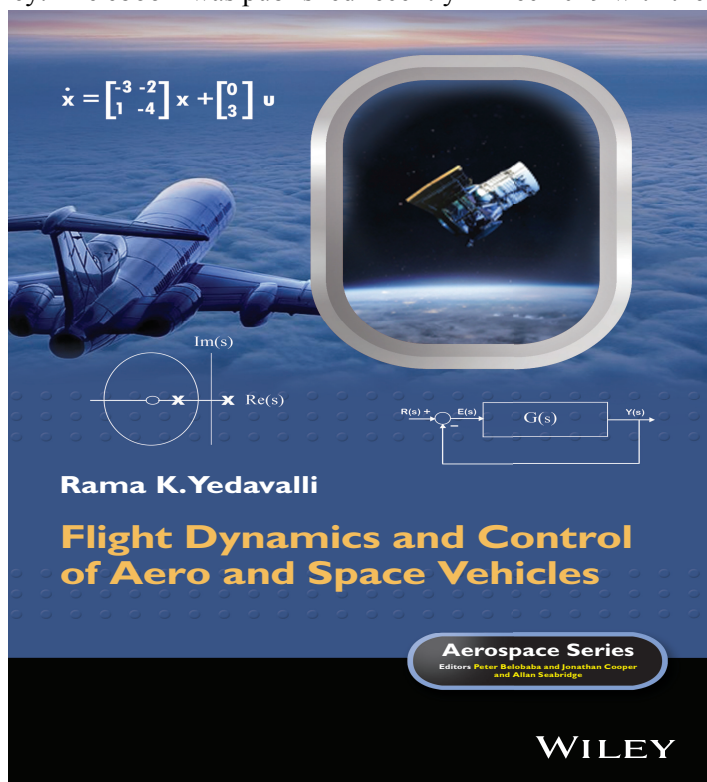
II-1. Textbook Authorship

Authored a graduate level textbook titled: “*Robust Control of Uncertain Dynamic Systems: A Linear State*



Space Approach”, Book published by Springer in Jan 2014.

Authored an Undergraduate level textbook on “Flight Dynamics and Control of Aero and Space Vehicles” for Wiley. The ebook was published recently in Dec 2019 with the hard copy book to be available from Feb 2020.



II-2. Courses and Short Courses Taught

Courses taught

- Modern Control Theory
- Discrete Systems
- Robust Multivariable Control (new course developed at OSU)
- Orbital Mechanics
- Optimal control Theory
- Computer Control of Robotic Systems
- Optimization Methods in Aerospace Engineering
- Flight Mechanics and Controls
- Stability and Control of Aerospace Vehicles
- Systems Dynamics

Invited Short Courses Taught

- Presented a short course on 'Sensitivity of Dynamic Systems' for faculty members at the University of Julia in Maracaibo, Venezuela in 1982
- Presented a short course on 'Robust Control' for AIAA as a member of a team of instructors prior to the AIAA Guidance, Navigation and Control Conference, Hilton Head, SC, Aug 1992.
- Presented an invited short course on 'Robust Control of State Space Systems' prior to the IEEE Conference on Decision and Control, Tucson, AZ, Dec 1992.

Areas of Specialization

- System Dynamics and Control Systems for Mechanical, Industrial and Aerospace Systems
- Robustness and Sensitivity in Uncertain Dynamic Systems
- Robust Control Systems Analysis and Design
- Modern Control Theory and Applications
- Optimization in Dynamic Systems
- Computer Control of Numerical Machines
- Dynamics and Control of Flexible Structures
- Dynamics and Control of Smart Structures
- Dynamics and Control of Robot Manipulators
- Aircraft/Spacecraft Control Systems Design
- Dynamics and Control of Propulsion Systems
- Active Control of Propulsion/Fluid Flow Systems
- Eco-inspired Robust Control of Engineering Systems

II-3. Student Recruitment and Mentoring

Prof. Yedavalli helped many undergraduate students by offering advise on their design projects, obtained highly gratifying and satisfying student evaluations on his teaching and engaged many undergraduates in small research projects as part of their 'individual studies' courses for Honors students (such as Micah Springer, Michael Snyder and many others). He actively participated many 'Open House' activities aimed at recruiting High School Students, College Freshman Students to the Mechanical and Aerospace Engineering field. He provided numerous reference letters for deserving students in their professional advancement. He also wrote many nomination letters and reference letters for many students in their Fellowship applications at the Department and College levels.

III. *PROFESSIONAL SERVICES*

III-1. Membership in Societies

- AAAS (American Association of Advancement of Science) [AAAS Fellow] (class of 2012)
- ASME (American Society Of Mechanical Engineers) [ASME Fellow] (class of 2008)
- IEEE (Institute of Electrical and Electronics Engineers) [IEEE Fellow] (class of 2003)
- AIAA (American Institute of Aeronautics and Astronautics) [Associate Fellow] (1991)
- Aerospace Systems Panel Member of the ASME Executive Committee of the ASME Dynamic Systems and Control Division (Oct 2004- Present)
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- Member of the SAE (Society of Aerospace Engineering) Guidance, Navigation and Control Committee (Oct 2006- Present)
- Member of the National Level AIAA Technical Committee on Guidance, Navigation & Control (1989-1992)
- Member of SIAM
- Member, IEEE Control Systems Society
- Member, Multivariable Linear Systems Working Group, IEEE
- Member, International Federation of Automatic Control Working Group on "Robust Control"
- Member, Sigma Xi
- National Merit Scholarship Holder, India
- Member of Focus Group on "Dynamic Systems & Control" of the Ohio Aerospace Institute.

III-2. Technical Review and Panel Review Services

Member of ASME DSCD Honors and Awards Committee (2016- present)

Member of a technical Review Panel for ONR on Ship Automation and Controls

Proposal Reviewer for NSF on many occasions

Member of a Review Panel for NSF on Research Initiation Grants

Member of a Review Panel for NSF on REUs

Reviewed numerous technical papers for various technical publications below

- Journal of Optimal Control: Applications and Methods
- Journal of Guidance, Control, and Dynamics (AIAA)
- Journal of Dynamic Systems, Measurement and Control (ASME Transactions)
- AIAA Journal
- IEEE Transactions on Automatic Control
- NSF Proposals
- Automatica (IFAC)
- IEEE, CDC, ACC Conferences
- International Journal of Control
- Applied Mechanics Reviews (AMR)
- Many other Journals and Conferences

III-3. Organizational Professional Services

Served as a Session Co-Chair for a technical session on Stability of Linear Systems at the American Control Conference, Milwaukee, USA, June 2018.

Served as Chair/Co-Chair for two technical sessions at AIAA SciTech Conference in Jan 2017.

Served as a Session Chair for a technical session on Stability of Linear Systems at the American Control Conference, Boston, USA, July 6-8, 2016.

Served as the Technical Program Committee Chair for the ASME Dynamic Systems and Control Conference held at Hilton Downtown in Columbus, OH in Oct 2015

Served as a Session Chair for Uncertain Systems and Robustness session at the ASME Dynamic Systems and Control Conference, Columbus, OH, Oct 28-30, 2015

Served as a Session Co-Chair for a Technical session on Stability of Linear Systems at the upcoming American Control Conference in Chicago, IL during July 1-3, 2015

Served as a Session Chair for Control Theory I at the IEEE Indian Control Conference, Chennai, India, Jan 5-7, 2015

Served as a member of the International Organizing Committee for the 2015 Euro GNC Conference to be held in Toulouse, France, April 2015.

Served (for a second term) as a member of the National level AIAA committee on Guidance, Navigation and Control for a three year period from Aug 2013-2016.

Served as a Society Review Chair for AIAA for the American Control Conference 2015

Served as a session chair for a technical session on “Robust Control” at the IEEE Conference on Decision and Control, Dec 15-17, 2010, Atlanta, GA

Served as a session co-chair for a technical session on “Vehicle Dynamics” at the ASME Dynamic Systems

and Control Conference, Sept13-15, 2010, Cambridge, MA

Served as a session chair for a technical session on “Control Applications-IV” at the American Control Conference, June 30-July 2, 2010, Baltimore, MD

Served as a member of the Technical Program Committee for the 2nd ASME Dynamic Systems and Control Conference (DSCC) held in Hollywood, CA in Oct 2009.

Served as a session chair for a technical session on ‘Control Systems III’ at the International Conference on Advances in Control and Optimization of Dynamic Systems (ACODS’07) , Feb 2007, Bangalore, India

Organized and chaired a technical session on ‘Flight Vehicle Dynamics and Control’ at the International Mechanical Engineering Congress & Exposition (IMECE) of ASME in Chicago, IL, Nov 2006

Co-chaired technical session on ‘Robust Analysis I’ at the 2006 IFAC conference on Robust Control Design (ROCOND’06) , Toulouse, France, July 2006

Co-chaired technical session on ‘Linear System Stability I’ at the 2006 American Control Conference, Minneapolis, MN, June 2006

Organized and chaired a technical session on ‘Flight Vehicle Dynamics and Control’ at the International Mechanical Engineering Congress & Exposition (IMECE) of ASME in Orlando, FL, Nov 2005

Co-chaired a technical session in the 2005 AIAA Guidance, Navigation and Control conference, San Francisco, CA , Aug 2005

Co-chaired technical session on ‘Stability of Linear Systems’ at the 2004 American Control Conference, Boston, MA, June 2004

Chaired technical session on ‘Robust Stability’ at the 2003 American Control Conference, Denver, CO, June 2003

Co-chaired technical session on ‘Descriptor Systems II’ at the 2003 American Control Conference, Denver, CO, June 2003

Chaired technical session on ‘Stability of Dynamic Systems’ at the 2002 American Control Conference, Anchorage, AL, May 2002

Chaired technical session on ‘Switched systems II’ at the 2001 IEEE Conference on Decision and Control, Dec 2001

Chaired technical session on ‘Robust stability’ at the 2001 American Control Conference, June 2001

Chaired technical session on ‘Robustness’ at the 2000 American Control Conference, June 2000

Co-chaired technical session on "Robustness Analysis" at the 1999 American Control Conference, June 1999

Served as one of the two 'Guest Editors' for an issue of the Journal 'Mathematical Problems in Engineering' commemorating the 60th Birthday celebrations of Prof. Robert E. Skelton

Co-chaired technical session on "Stability I" at the 1998 American Control Conference, June 1998

Active participant in organizing symposium honoring Prof. Robert E. Skelton of the University of California, San Diego as part of his 60th Birthday celebration.

Chairman of session on "Robust Design I" at the IEEE Conference on Decision and Control, San Diego, CA, Dec 1997

Chairman of session on "Control Theory IV" in the SPIE Conference on Smart Structures and Materials, San Diego, CA, March 1997

Chairman of session on "Aircraft Control" at IEEE Conference on Control Applications, Detroit MI, September 1996

Chairman of session on "Stabilization" in the 13th IF AC World Congress, San Francisco, CA, June-July 1996

Chairman of session on "Stability" at the 1995 IEEE Conference on Decision and Control, New Orleans, LA, December 1995

Invited participant in the NSF-Sponsored International Workshop on "Future Directions in Robustness Research" organized by Prof. B.R. Barmish of University of Wisconsin, Madison, WI, November 17-19, 1995

Chairman of session on "Control Theory II" at the 1995 AIAA Guidance, Navigation and Control Conference, Baltimore, MA, August 1995

Co-Chairman of session on "H-Infinity and Robust Control" at the 1995 American Control Conference, Seattle, W A, June 1995

Chairman of session on "Robust Control III" at the 1995 American Control Conference, Seattle, W A, June 1995

Chairman of session on "Control Methods for Active Systems II" at the 1995 North American Conference on Smart Structures and Materials, San Diego, CA, February 1995

Chairman of session on "Flight Controls" at the First Industry/Academy Symposium on Research for Future Supersonic and Hypersonic Vehicles, Greensboro, NC, December 1994

Co-Chairman of session on "Linear Control System Design" at the 1994 IEEE Conference on Decision and Control, Lake Buena Vista, FL, December 1994

Vice Chairman of symposium on "Active Control of Vibrations and Noise: Adaptive Materials, Actuators and Sensors," ASME International Congress and Exposition of the Winter Annual Meeting of ASME, Chicago, IL, November 1994

Chairman of session on "Numerical Methods" at the 1994 American Control Conference, Baltimore, MD, June 1994

Chairman of session on "Robust Control for Distributed Systems." 1993 American Control Conference, San Francisco, CA, June 1993

Served as AIAA Society Review Chairman for the 1993 American Control Conference

Served as Program Committee Member for the 1992 IEEE Conference on Control Applications (CCA) Dayton, OH, September 1992

Served as Program Committee Member for the 1992 American Control Conference held in Chicago, IL, June 1992

Served, by invitation, as an NSF Panel Reviewer for Selection of Research Initiation Grants and other grants administered by NSF

Organized and taught a tutorial workshop on "Robust Control for State Space Systems" at the 1992 IEEE Conference on Decision and Control; (along with Prof. George Leitmann of University of California, Berkeley), Tucson, AZ, December 15, 1992

Served as member of the team of instructors for the AIAA Professional Short Course on "Robust Multivariable Control: Theory and Applications," Hilton Head Island, SC, August 13-14, 1992

Organized a full day workshop on "Robust Control " sponsored by Ohio Aerospace Institute, October 18, 1991

Served as Technical Program Committee Chairman for the 1991 AIAA Guidance and Control Conference, New Orleans, LA, August 1991

Organizer and Chairman for an invited session on "Robust Stability Analysis for Uncertain Polynomials and Matrices," 1989 IEEE Conference on Decision and Control, Tampa, FL, December 1989

Chairman for a session on "Robust Control in State Space," at the 1988 IEEE Conference on Decision and Control, Austin, TX, December 1988

Chairman for a session on "Control Analysis and Design " at the 1988 AIAA Guidance and Control Conference, Minneapolis, MN, August 1988

Co-chairman for a session on "Stability of Linear Systems" at the 1988 IEEE American Control Conference, Atlanta, GA, June 1988

Co-chairman for a contributed session in the 1987 IEEE Conference on Decision and Control, Los Angeles, CA, December 1987

Organizer and Chairman for an Invited Session on "Robust Control via Lyapunov Methods" in the American Control Conference, Minneapolis, MN June 1987

Invited participant in the NSF Engineering Foundation Workshop on "Qualitative Methods for the Analysis of Nonlinear Dynamics," Henniker, NH, June 1986

Invited participant in the NASA Lewis JIAPP Workshop, November 1985

Organizer and Chairman for an Invited Session on "Robustness Considerations in Time Domain" in the American Control Conference, Boston, MA, June 1985

Invited participant in the forum on "Large Space Structures" arranged by U.S. AFOSR, Washington, DC, July 1984

III-4. Other Professional Services

Organized a workshop on "Trends and Applications in Robust Control" for the Ohio Aerospace Institute, in Oct 1991

Served, on Invitation, as a Member of the External Review Board (EAB) of NASA-CAR (NASA Center for Aerospace Research) at North Carolina A&T State University (invited in Oct'98)

Served as a Member of the PCC (Program Coordinating Committee) representing the Ohio State University for the Controls and Robotics Focus Group of the Wright State University PhD program in Engineering

Served as a reviewer for a chapter for a book authored by Howard Curtiss on "Orbital Mechanics for Engineering students"

Published a Book Review on "Aircraft Performance" written by Prof Vinh for the ASCE Journal of Aerospace Engineering., 1996

Published a Book Review on "System Dynamics: An Introduction" by Derek Rowell and David N. Wormley for Prentice Hall in Applied Mechanics Reviews, Vol 150, June '97

Supplied evaluation letters for many professional colleagues towards the advancement of their professional careers

Praveen Shankar, a Ph.D. student of Dr. Yedavalli (on Yedavalli's nomination and recommendation), received the prestigious **AIAA Orville Wright Graduate student award** in 2006.

Rohit Belapurkar, a Ph.D. student of Dr. Yedavalli (on Yedavalli's nomination and recommendation), received the prestigious **ASME IGTI Scholarship** in 2011

E. ADMINISTRATIVE LEADERSHIP EXPERIENCE AND ACCOMPLISHMENTS

1. DIRECTOR OF THE DISTRIBUTED ENGINE CONTROL AND SIMULATION LABORATORY:

In this position, Prof. Yedavalli is responsible for enhancing the capabilities of the original Turbine Engine Dynamic Simulator (TEDS) equipment of AFRL, which is awarded to OSU by AFRL (for which Georgia Tech and local Ohio Universities were competitors), and use the laboratory for conducting research and education activities of interest to Industries, Academia and Federal Agencies. In this connection, TEDS equipment is being reconfigured from a centralized control architecture to a Distributed Control architecture to carry out advanced Distributed Control and Simulation research and laboratory education. This 'directorship' position and experience attests to Yedavalli's persuasive skills and reputation base in bringing the laboratory to OSU in the presence of competition from schools like Georgia Tech, and University of Cincinnati.

2. **COMMITTEE SERVICE CONTRIBUTIONS**

University Committee Activities:

Member of the **University Senate Fiscal Committee**: Was responsible for evaluation of many fiscally related matters such as Student Fees and Budget Allocations among various University Programs and Colleges.

Currently, a member of the **University Graduate Council** : Is responsible for approving all matters related to the entire Graduate Education within the University, covering various Programs and Colleges.

Member of the **University Fellowships Evaluation Committee**: Was responsible for evaluation of many University Fellowship applications from students of various backgrounds such as from colleges of physical sciences, social and behavioral sciences, engineering, business, law and others and rank these applicants on a scale in a educated and objective frame of mind.

College Committee Activities:

Chair of the P&T Committee for the College of Engineering (2012):

As the Chair of the CoE P&T committee, evaluated numerous dossiers of eligible faculty and made critical decisions about the faculty member's tenure and promotion, including few difficult cases involving careful evaluation and judgment. The OSU College of Engineering is large and has close to 300 faculty.

Member of the P&T Committee for the College of Engineering (2011-2012):

As Chair of the College P&T committee and the Chair of the MAE Department's P&T committee, was responsible for evaluating the faculty members' eligibility for Promotion & Tenure. Actively participated in the deliberations and helped the Dean and Chair of the department. Needless to say, P&T committee is one of the most important committees that is directly related to the enhancement of the quality and reputation of the department.

Member of the College Committee on Academic Affairs CCAA (1999-2006)

Also was a member of the Course Proposal Sub committee of the CCAA.

MAE Department Committee Activities

Chairman of the P&T Committee of the Department of Mechanical and Aerospace Engineering (From Jan 1, 2012-June 30 2012): Was selected by the Chair of the MAE Department . From July, was selected as the Chair of the *College* P&T committee.

Member of the MAE Department's P&T Committee (July 2010-June 2012)

Member of the MAE Department's Honors Committee (July 2010-Present)

Chair of the Subcommittee for CoE Awards in the Department Honors and Awards committee: In this role, is responsible for selecting the MAE department nominees for the CoE Awards.

Department of Aerospace Engineering Committee Activities:

Chairman of the P&T Committee of the Department of Aerospace Engineering:

Chairman of the Faculty Search Committee of the Department of Aerospace Engineering:

As Chairman of the Faculty Search Committee of the Department, Prof. Yedavalli evaluated the curriculum vitae of numerous incoming applicants, convened and led deliberations of the committee and finally conveyed the recommendations of the committee to the Chair and entire department. In that process, was responsible in scheduling the visits of the faculty candidates, actively engaging the candidates during the campus visits and carefully assessing the strengths and weaknesses of the candidates. It is a point of pride in stating that one faculty member candidate identified by Prof. Yedavalli as a final selection (Jim Gregory) is currently performing extremely well as an Assistant Professor and had successfully passed the fourth year review.

Chairman of the Undergraduate Studies Committee of the Department of Aerospace Engineering:

In this capacity, Prof. Yedavalli was responsible for leading curriculum changes for Undergraduate courses, making decisions on student petitions related to their plans of study, monitoring advising and mentoring activities of faculty members, and monitoring compliance of the curriculum to ABET requirements.

Member of the College Committee on Academic Affairs (CCAA):

As a member of this College level committee, Prof. Yedavalli actively participated in all the matters related to academic affairs (such new course approvals, undergraduate and graduate course curriculum changes, mergers of departments) and contributed significantly to the curriculum development and other academic matters of the Aerospace engineering department. Was a member of the Course Proposal Sub committee of the CCAA.

Chairman of the Technical Program committee of the AIAA Guidance, Navigation and Control Conference and member of Technical Program Committees of few other conferences:

In this capacity, Prof. Yedavalli interacted with reviewers with varied backgrounds and was responsible for setting up technical sessions with various themes and make crucial decisions on acceptance/rejection of the papers. Success and experience in this capacity attests to Prof. Yedavalli's organizational capabilities as well as interpersonal/communication skills.

Organizer of a Full Day Workshop on 'Robust Control: Applications and Trends' for the Ohio Aerospace Institute (OAI):

In this capacity, Prof. Yedavalli identified and invited researchers from Academia (Universities in Ohio), Federal Research Laboratories (AFRL, NASA Glenn) and Industries (GE Aircraft Engines) to give plenary and semi-plenary lectures, with Prof. Yedavalli himself providing the lead lecture for disseminating the research results and exploring avenues of further research in that area which attracted considerable participation from all the three organizations. Success and experience in this capacity attests to Prof. Yedavalli's organizational capabilities as well as interpersonal/communication skills.

Member (Appointed by the Dean) of the Search Committee for the Chair of the Department of Aerospace Engineering:

Appointed by Dean Ashley, Prof. Yedavalli assisted the department in the selection of the Chair of the Department of Aerospace Engineering and Aviation. Responsible for evaluating the candidates for the Chair position and rank ordering the recommendations to the Dean. During this phase, interacted with productively with other members of the committee which included officials from NASA Glenn and faculty members from other engineering departments.

Member of the Search Committee for Endowed Glenn Chair Position

In this capacity, made efforts to identify suitable candidates among the peer community and when applications were made, evaluated those applications, actively participated in the candidates' campus interviews and made recommendations to Chair of the search committee. Due to the tireless efforts of this committee, which included those of Prof. Yedavalli, finally an offer was made to a highly sought after researcher Dr. Datta Gaitonde of AFRL who accepted it and joined the faculty of the MAE department as the Glenn Chair. This effort is deemed by many to be pivotal in increasing the reputation and stature of the MAE department.

Other Committee Activities

- Thesis committee member for a number of students in M.S. and Ph.D. programs
- Member, Laboratory Development Committee for Astronautics and Flight Sciences
In this capacity, was responsible for identifying the needs of the department for laboratory equipment for teaching and education purposes and advise the Chair on these issues.
- Member, Alumni & Public Relations Committee
In this capacity, interacted with various Alumni members as an advocate for the Department's progress and urging them to donate gifts and scholarships for students.
- Member, Undergraduate Studies Committee of the Department
- Member of the Chairperson Search Committee (1999)
- Member of the Department's Research Committee
- Member of Recruitment Committee
In this capacity, personally participated in recruiting via phone calls and increased the number of students interested in the aerospace engineering program.

3. STRATEGIC AND BUDGETARY PLANNING

Strategic and budgetary planning for advocacy of the separate identity of the aerospace engineering department during merger plans:

During the suggested plan of merger of the Department of Aerospace Engineering with the Mechanical Engineering department by the Dean, Prof. Yedavalli, as a member of the faculty of Aerospace Engineering, actively participated and took a leadership role in the efforts on reshaping the strategic and budgetary planning for the Department of Aerospace Engineering to continue as a separate department. During this phase, carried out lengthy and productive dialogues with advisory board members as well as officials and researchers from federal agencies and industries (such as AFRL, NASA Glenn, GE, Boeing, Goodrich, Ohio Aerospace Institute).

One aspect of budgetary planning insight Prof. Yedavalli provided is his inclination to place less reliance on the 'Release Time' money and instead to look for innovative ways of distributing the 'Indirect Cost' monies from the sponsored research agreements. This insight was very much appreciated by the upper administration.

4. CIVIC ENGAGEMENT AND OUTREACH

Served as a Judge for evaluating High School Science Projects for the Ohio Academy of Science for many years.

Granted Interviews for many Middle School and High School Students as part of their school projects.

Served as an External Evaluator (which included an Honorarium) for the Indian Institutes of Technology, Kanpur, Delhi, India (for Ph.D. thesis evaluations)

Served as an External Evaluator for Hamilton Institute, Ireland (for a Research Proposal)

5. ACKNOWLEDGEMENT OF LEADERSHIP CAPABILITIES at OSU:

- **Internal Nominated Candidate for the Chair of the Department of Mechanical and Aerospace Engineering:** In Feb 2016, Prof. Yedavalli was nominated to be one of the (internal search) candidates for the position of the Chair of the MAE Department.

F. ENTREPRENEURSHIP

President of 'Robust Engineering Systems, LLC', (RES), a small business for undertaking research projects in the fields of aerospace, automotive and defense technologies by designing and developing software for the analysis, synthesis and simulation of robust engineering systems.

Summer 2015 and Summer/Fall 2017: Obtained research funding under an Independent Contractor Agreement (ICA) from Universal Technologies Corporation during the Summer of 2015 and again in Summer of 2017 for research on Robust Control Design Algorithms for Aircraft Thermal Management and Rapid Mission Planning.

One of Prof. Yedavalli's students, Dr. Sampri Bhattacharyya, who obtained her Ph.D from MIT and a Master's degree at OSU with Prof. Yedavalli as the advisor was named to the Forbes 30 under 30 Class of 2016, and was featured on OSU website: Here are some excerpts:

Alumni Spotlight Q&A: Sampri Bhattacharyya

Sampri Bhattacharyya

Named to the Forbes 30 under 30 Class of 2016, **Sampri Bhattacharyya** ('12 MS, Aerospace Engineering) and her startup, Hydroswarm, are gaining the attention of manufacturing leaders across the nation. Launched in Boston, Hydroswarm is commercializing the football-sized autonomous underwater drones that Bhattacharyya developed during her time as a PhD student at MIT. Her egg-shaped robots are capable of working alone or in tandem to map the ocean floor, inspect underwater nuclear reactors, search for lost planes and complete virtually any underwater surveillance task. Her startup has captured worldwide attention with its innovative and relatively inexpensive robot design.

This summer, Bhattacharyya graduated from MIT with a PhD in mechanical engineering and a minor in business. Today, she runs Hydroswarm full-time and is taking her technology out of the lab and into the ocean.

In addition to Hydroswarm, she co-founded the Lab-X Foundation - alongside two Buckeye engineering graduates - in an effort to help future scholars break down the barriers they face when coming to the United States from smaller engineering schools in developing nations.

Q: For your master's research, you worked alongside Professor Rama Yedavalli.

What did you work on?

We used a particle accelerator beam to produce energy from nuclear waste. That process also made the waste less radioactive. Looking back, I did a pretty intense master's project. I really enjoyed it. I was working full-time at the lab on the feasibility analysis and beam control.

My original plan for my doctoral research at MIT was to build the model system I had designed at Ohio State, but I soon realized the regulatory issues involved would be beyond the scope of this project. So, instead, I started working with Ford Professor of Engineering Harry Asada on a robot designed to look for cracks in a nuclear reactor's water tanks.