

ANSHU NARANG-SIDDARTH

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EDUCATION

Ph.D	Aerospace Engineering, Texas A&M University	August 2012
M.S	Aerospace Engineering, Indian Institute of Technology Madras	June 2008
B.Tech	Electrical and Electronics Engineering, Jawaharlal Nehru Technological University	April 2006

PROFESSIONAL EXPERIENCE

Assistant Professor	<i>William E. Boeing Department of Aeronautics & Astronautics</i> University of Washington	August 2013-Present
Postdoctoral Research Associate	<i>Machine Learning Control of Nonlinear, High Dimensional, Reconfigurable Systems</i>	September 2012 - July 2013
Employer:	Vehicle Systems & Control Laboratory, Texas A&M University	
Sponsor:	Air Force Office of Scientific Research, Washington DC	
Graduate Research Assistant	<i>Vehicle Systems & Control Laboratory, Department of Aerospace Engineering</i> Texas A&M University	August 2008- August 2012
Graduate Research Assistant	<i>Land, Air and Space Robotics Laboratory, Department of Aerospace Engineering</i> Texas A&M University	June 2011- August 2011
Graduate Research Scholar	<i>Department of Aerospace Engineering</i> Indian Institute of Technology Madras	August 2006- June 2008

RECOGNITION

2013	NSF funded SIAM Early Career Travel Award to present research at the 2013 SIAM Conference on Control & Its Applications
2013	Distinguished Graduate Student Award for Excellence in Research-Doctoral; awarded by the Texas A&M Association of Former Students; University announcement
2013	Outstanding Achievement Award, Dynamics & Control, Department of Aerospace Engineering, Texas A&M University
2013	Outstanding PhD Graduate Student Award, Department of Aerospace Engineering, Texas A&M University
2012	Excellent Reviewer, Journal of Guidance, Control and Dynamics October 2011- September 2012
2012	Best Presentation in Session Award, IFAC American Control Conference
2011	Zonta International Amelia Earhart Fellowship 2011-2012, Texas A&M University
2008	Topper of the M.S Scholars Class of 2008, Indian Institute of Technology Madras
2007	Tata Consultancy Services “Best in Class” Fellowship awarded for best thesis proposal, Indian Institute of Technology Madras
2006	Among Top 10 University Candidates, Class of 2006, Jawaharlal Nehru Technological University
2003, 2004, 2005, 2006	Academic Proficiency Award, Jawaharlal Nehru Technological University

BOOKS, BOOK CHAPTERS, ARCHIVAL PUBLICATIONS AND PEER-REVIEWED CONFERENCE
PROCEEDINGS (BY RESEARCH AREA)

On Singular Perturbations in Nonlinear Control

1. **Narang-Siddarth, Anshu** and Valasek, John. 2013. Nonlinear Time Scale Systems in Standard and Non-Standard Forms: Analysis & Control. *Book contract signed with SIAM* (to be published by December 2013).
2. **Siddarth, Anshu** and Valasek, John. 2011. Global Tracking Control Structures for Nonlinear Singularly Perturbed Aircraft Systems in *Advances in Aerospace Guidance, Navigation & Control*, Florian Holzapfel and Stephan Theil, Eds, Springer Berlin Heidelberg, DOI: 10.1007/978-3-642-19817-5_19, pp 235-246 (Presented at the 1st CEAS Specialist Conference on Guidance, Navigation & Control, München, Germany, 13 April 2011).
3. **Siddarth, Anshu** and John Valasek. 2011. Kinetic State Tracking for a Class of Singularly Perturbed Systems. *Journal of Guidance, Control, and Dynamics*, Vol. 34, No.3, pp. 734-749 (Presented at the 2010 AIAA Guidance, Navigation, and Control Conference, Toronto, Canada, 4 August 2010).
4. **Narang-Siddarth, Anshu** and Valasek, John. 2012. Tracking Control Design for Non-Standard Nonlinear Singularly Perturbed Systems. WeA06.6, *Proceedings of the 2012 American Control Conference*, Montréal, Canada, 27 June 2012.
- * **Siddarth, Anshu** and John Valasek. 2013. Feedback Control of Nonlinear Non-Standard Singularly Perturbed Systems. *Automatica* (revision submitted).

Non-Minimum Phase Flight Control

5. **Narang-Siddarth, Anshu** and Valasek, John. 2012. Tracking Control for a Non-Minimum Phase Autonomous Helicopter. AIAA 2012-4453, *Proceedings of the 2012 AIAA Guidance, Navigation & Control Conference*. Minneapolis, MN, 13 August 2012.
6. **Siddarth, Anshu** and Valasek, John. 2011. Output Tracking of Non-Minimum Phase Systems. AIAA-2011-6487, *Proceedings of the 2011 AIAA Guidance, Navigation, and Control Conference*, Portland, Oregon, 9 August 2011.
- * **Siddarth, Anshu** and John Valasek. 2013. Hover Control for a Non-Minimum Phase Autonomous Helicopter. *Journal of Guidance, Control and Dynamics* (submitted; in review).
- * **Narang-Siddarth, Anshu**, Peter, Florian, Holzapfel, Florian and Valasek, John. 2014. Nonlinear Autopilot Design for a Tail-Controlled Missile Using Time Scale Separation. *Proceedings of the 2014 AIAA Guidance, Navigation & Control Conference*. (submitted; under review).

Constructive Approach for Non-Affine Control Systems

7. **Narang-Siddarth, Anshu** and Valasek, John. 2013. Necessary Conditions for Feedback Passivation of Nonaffine-in-Control Systems. *Proceedings of the 2013 SIAM Conference on Control & Its Applications*, San Diego, 9 July 2013.
8. **Narang-Siddarth, Anshu** and Valasek, John. 2013. A Constructive Stabilization Approach for Open-Loop Unstable Non-Affine Systems. *Proceedings of the 2013 American Control Conference*, Washington D.C, 19 June 2013.

Bifurcation Analysis in Flight Dynamics

9. Rao, D.M.K.K Venkateswara, **Narang, Anshu** and Sinha, Nandan K. 2009. Controller Design using Bifurcation Map for Aircraft Spin Recovery. *Proceedings of the WSEAS Dynamical Systems and Control Conference*, Tenerife, Spain, 1-3 July 2009.
10. **Narang, Anshu** and Sinha, Nandan K. 2008. Bifurcation Analysis as a Tool in Advanced Flight Testing. *International Flight Test Seminar. Aircraft Systems Testing Establishment*, Bangalore, India, 15 February 2008.

Adaptive and Optimal Control

11. Valasek, John, Akella, Maruthi R., **Siddarth, Anshu**, and Rollins, Elizabeth. 2012. Adaptive Dynamic Inversion Control of Linear Plants with Control Position Constraints. *IEEE Transactions on Control Systems Technology*, Vol.20, No.4, pp 918-933.
12. Satak, Neha, Cavalieri, Kurt, Moody, Clark, **Siddarth, Anshu**, Hurtado, John E., Sharma, Rajnish 2011. Experimental Investigations of Trajectory Guidance and Control for Differential Games. AAS 11-639, *Astrodynamics Specialist Conference*, Girdwood, Alaska, 4 August 2011.
13. Marwaha, Monika, Valasek, John, and **Narang, Anshu**. 2009. Fault Tolerant SAMI for Vision-Based Probe and Drogue Autonomous Aerial Refueling. AIAA-2009-1887, *Proceedings of the Infotech@Aerospace 2009 Conference and Exhibit*, 7 April 2009.

SELECTED PROFESSIONAL SERVICE

Associate Member AIAA Guidance, Navigation & Control Technical Committee
May 2012 - Current

Peer Review Work Reviewer of the following journals and conference publications

- IEEE Control Systems and Technology
- IEEE Transaction on Aerospace and Electronic Systems
- Journal of Guidance, Control and Dynamics
- Journal of Aerospace Computing, Information and Communication
- Journal of Aircraft
- IEEE Conference on Decision and Control
- American Control Conference
- SIAM Conference on Control & Its Applications
- AIAA Guidance, Navigation & Control Conference
- CEAS European Guidance, Navigation and Control Conference

PROFESSIONAL AND HONOR SOCIETY MEMBERSHIPS

American Institute of Aeronautics and Astronautics (AIAA), Institute of Electrical and Electronics Engineers (IEEE), IEEE Control System Society (CSS), IEEE CSS Women in Control (WiC), IEEE Women in Engineering (WIE), Sigma Gamma Tau Aerospace Honor Society (SGT), Aggie Aerospace Women in Engineering (AAWE)