Venkatesh G. Rao

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Education

- Ph.D., Systems and Control, Aerospace Engineering, University of Michigan, 2004
- M. S., Systems and Control, Aerospace Engineering, University of Michigan, 1999
- B. S., Mechanical Engineering, Indian Institute of Technology, Mumbai, 1997

Experience

03/11 – Present **Ribbonfarm Consulting., Seattle, WA**
Founder and Principal
- Consulting for ~30 varied corporate clients
- Founder/editor-in-chief at ribbonfarm.com (~40k visitors/month)
- Published book on decision-making, *Tempo* (2011)

08/06 – 02/11 **Xerox Research Center, Webster, NY (now part of PARC)**
Entrepreneur-in-Residence and Senior Researcher
- Led early development of two Web products, *Trailmeme* and *Contineo*
- Technical contributor to projects in facilities and fleet management
- Inventor or co-inventor on 6 awarded patents

01/04 – 07/06 **Postdoctoral Associate, Cornell University, Ithaca, NY**
Project: "Cooperative Control of Adversarial Multi-Vehicle Systems"
Supervisor: Prof. R. D'Andrea, Mechanical and Aerospace Engr.

09/01 - 12/03 **Doctoral Candidate, University of Michigan, Ann Arbor, MI**
Dissertation: "Team Formation and Breakup in Multiagent Systems"
Supervisor: Prof. P. T. Kabamba, Aerospace Engineering

09/00 - 08/01 **Manager, Sulekha.com, Austin, TX**
- First employee at pioneering community startup, *Sulekha.com*

Teaching/Advising Experience

- Instructor/Developer, "Methods for Complex Engineering Systems," (Cornell, 2006)
- Supervised six undergraduate senior research projects at Cornell (2004-06)
- "Michigan Teaching Fellow" certification (2003)
- Graduate Teaching Assistant for 7 terms (U. Michigan, 1997-2003)

Awards and Fellowships

- Kate Gleason Young Engineer of Year award, Rochester Engineering Society, 2009
- Telluride Fellowship, University of Michigan 2001, 2002, 2003
- Russi Modi Undergraduate Fellowship 1993-97

Selected Recent Media Coverage

- Auf in eine mittelmäßig gute Zukunft (German), profile in *Frankfurter Allgemeine Zeitung,* December 2017. Link
- Nespresso und Trüffelöl - Warum wir so tun, als wären wir reich (German), profile in *NZZamSontag* (Zurich), March 2018. Link.

Selected Writing (Non-Academic)

1. The Premium Mediocre Life of Maya Millennial, 2017 (ribbonfarm.com)
2. Why Solving Climate Change Will Be Like Mobilizing for War, 2015. (theatlantic.com)
3. Breaking Smart, Season 1, 2015. (breakingsmart.com)
4. American Cloud, 2013 (aeon.co)
5. The Gervais Principle, 2009-12. (ribbonfarm.com)

Selected Recent Talks

1. Archetypes for the Anthropocene, *Work Marathon*, Serpentine Galleries, London (2018)
2. Off the Clock, *Thinking Digital Conference*, Newcastle, UK (2018)

Journal Articles

1. Rao, V. G. and D'Andrea, R., "Patch Models and their Applications to Multi-Vehicle Command and Control," *IEEE Transactions on Systems, Man and Cybernetics* Vol. 37, No. 3, 2007.
2. Rao, V. G. and Kabamba, P. T., "Optimal Two-Agent Graph Traversal: When is Formation Travel Beneficial?" *Journal of Optimization Theory and Applications,* Vol.

130, No. 3, 2006.

3. Rao, V. G. and Kabamba, P. T., "MixTeam Scheduling Algorithms: Application to Space-Based Interferometers," *Journal of Astronautical Sciences*, Vol. 53, No. 2, June 2006.

4. Venugopal, R., Rao, V. G., and Bernstein, D. S., "Lyapunov-Based Backward-Horizon Adaptive Stabilization," *International Journal of Adaptive Control and Signal Processing*, Vol. 17, No. 1, 2003.

5. Rao, V. G. and Bernstein, D. S., "Naive Control of the Double Integrator: A comparison of a dozen diverse controllers under off-nominal conditions," *IEEE Control Systems Magazine*, September 2003.

Book Chapters

1. Rao, V. G. and Petty, B. "Mousetrap 2.0", in N. Jamali *et. al.* (Eds.), *Massively Multiagent Technology* LNCS, Vol. 5043, 2008.

2. Rao, V. G., Goldfarb S. and D'Andrea, R. "Abstraction-Based Command and Control with Patch Models", in J. Shamma *et. al.* (Eds.), *Cooperative Control of Distributed Multi-Agent Systems* John Wiley & Sons, 2007.

3. Rao, V. G. and Kabamba, P. T., "Optimally Greedy Control of Team Dispatching Systems", in D. Grundel *et. al.* (Eds.), *Advances in Cooperative Control and Optimization* Kluwer, 2006.

Conference Papers

1. Rao, V. G. and Foley, D., "A Linear-Programming Approach to Fleet-Cost-Reduction Targeting", *Xerox Innovation Group Conference*, Rochester, NY, 2008.

2. Rao, V. G. and D'Andrea, R., "Patch Models and their Applications," *American Control Conference*, 2006.

3. Rao, V. G., Wongpiromsarn, T., Ho, T., Chung, K., and D'Andrea, R., "Encapsulated Motion Planning for Abstraction-Based Control of Multivehicle Systems," *American Control Conference*, 2006.

4. Chung, K., Rao, V. G., and D'Andrea, R., "Predictable Motion in Unpredictable Domains: The Spotlight Tracking Problem," *AIAA Guidance, Navigation and Control Conference*, 2006.

5. Goldfarb, S., Rao, V. G., and D'Andrea, R., "Agent-based modeling with polygon primitives for aerospace applications," *AIAA Modeling and Simulation Technologies*

Conference and Exhibit, 2006.

6. Wongpiromsarn, T., Rao, V. G., and D'Andrea, R., "Two Approaches for Dynamic Refinement in Hierarchical Motion Planning," *AIAA Guidance, Navigation and Control Conference*, San Jose, CA, August 2005.

7. Rao, V. G. and Kabamba, P. T., "Interferometric Observatories in Circular Orbits: Designing Constellations for Capacity, Coverage and Utilization," *2003 AAS/AIAA Astrodynamics Specialists Conference*, Big Sky, Montana, August 2003.

8. Rao, V. G. and Kabamba, P. T., "NRASIM: A Design Toolbox for Scheduling of Multi-Spacecraft Interferometric Telescopes," *AIAA Modeling and Simulation Technologies Conference*, Austin, TX, August 2003.

9. Rao, V. G. and Kabamba, P. T., "Time-Optimal Two-Agent Graph Traversal: When is Formation Travel Beneficial?" *Proc. American Control Conference*, Denver, CO, June 2003.

10. Rao, V. G. and Kabamba, P. T., "Optimal Coordination for Mobile Agents: Application to Space-Based Interferometers," *Proc. AAS/AIAA Space Flight Mechanics Meeting*, Ponce, PR, February 2003.

11. Venugopal, R., Rao, V. G., and Bernstein, D. S., "Optimal Backward-Horizon Discrete-Time Adaptive Control," *Proc. American Control Conference*, Chicago, IL, July 2000.

12. Rao, V. G. and Bernstein, D. S., "Naive Control of the Double Integrator: A comparison of a dozen diverse controllers under off-nominal conditions," *Proc. American Control Conference*, San Diego, CA, July 1999.

Patents

1. David Russell Vandervort, Venkatesh Guru Rao, Jesse Silverstein, and Michael Collins Allers, "Generating formatted documents based on collected data content." US Patent Number 8,856,645 (2014)

2. Christopher R. Dance, Onno Zoeter, Yu-An Sun, and Venkatesh Rao, "Method for estimation of a payment for an existing report based on subsequent reports which provides incentives for reporters to report truthfully." US Patent Number 8,538,833 (2013)

3. Venkatesh Guru Rao, Jesse Silverstein, James Walter Reid, and David Russell Vandervort, "Trail-based data content discovery, organization, and processing." US Patent Number 8,533,582 (2013)

4. David Russell Vandervort, Venkatesh Guru Rao, Jesse Silverstein, "Validating aggregate documents." US Patent Number 8,321,382 (2012)

5. Venkatesh Guru Rao, "Method and system for creative collaborative marketplaces." US Patent Number 8,086,501 (2011)

6. Shanmuga-Nathan Gnanasambandam,Venkatesh Guru Rao, and Naveen Sharma, "Method and system for determining an average walk distance to a service." US Patent Number 7,987,051(2011)