

# Akhil Rao, Ph.D.

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# Rational Futures

## SELECTED EXPERIENCE

### NASA

Research Economist / Chief Economist

Sep 2023 - Apr 2025

Advised NASA senior leadership regarding procurement and acquisitions strategies for flagship programs.

Led economic analyses of market competition issues, including assessing likely competitive effects of government policies and evaluating potential anti-competitive effects of industry consolidation.

Led & supported interagency analyses of technology investments, space sustainability policies, supply chain issues, regulatory impacts, tax proposals, data infrastructure development, and market competition.

Conducted rigorous cost-benefit analyses of investment strategies and technology valuation.

### Middlebury College

Assistant Professor

Jun 2019 - Sep 2023

Developed theoretical & econometric models to analyze market failures, regulatory impacts, and economic damages in environmental contexts.

Published peer-reviewed research applying quantitative methods to assess causal relationships and economic impacts of policy interventions.

### Red9 Corporation

Data Scientist

Jun 2013 - Aug 2015

Led model development and validation for motion sensor data platform.

Created statistical models to evaluate consumer behavior and quantify economic value of product innovations.

## EDUCATION

### University of Colorado Boulder — *Ph.D. in Economics*

Aug 2016 - May 2019

### University of Colorado Boulder — *M.A. in Economics*

Aug 2014 - May 2016

### University of California Riverside — *B.S. in Business Administration*

Sep 2008 - May 2012

## SKILLS

Economist with expertise in quantitative methods, competition analysis, and economic damages estimation

Analyst skilled in developing rigorous, evidence-based assessments for litigation support and expert testimony

Collaborative professional with proven ability to lead cross-functional teams and communicate complex economic concepts to non-technical stakeholders

econometrics | statistical & causal inference | market & competition analysis | damages estimation & valuation | mathematical & simulation modeling | data analysis & visualization | R | Python | SQL

expert report preparation | research presentation | stakeholder engagement | cross-disciplinary collaboration | deposition & testimony support | technical writing for general audiences

## SELECTED RESEARCH PUBLICATIONS

- Highfill, T. and Rao, A., 2025. Measuring Space Manufacturing Plant Utilization and Own-Account Production. BEA Working Paper Series, WP2025-5.
- Rao, A., Rondina, G., 2025. The Economics of Orbit Use: Open Access, External Costs, and Runaway Debris Growth. *Journal of the Association of Environmental and Resource Economists*, 12(2), pp.353-388.
- Coulombe, R.G. and Rao, A., 2025. Fires and local labor markets. *Journal of Environmental Economics and Management*, 130, p.103109.
- Lifson, M., Baset, A., Cates, G., Chen, B., Connor, A., Coursey, C., Henning, G., Miyamoto, M., Peterson, G.E., Weeden, B., Williams, G., Brownhall, I., Burgess, M.G., Holzinger, M., Kaffine, D., Moretto, M. and Rao, A., 2024. Development of Reference Scenarios and Supporting Inputs for Space Environment Modeling.
- Qureshi, R., Gleason, R., Rao, A., Mulder, S., Tauritz, D.R. and Guzzetti, D., 2024. A Tabletop Game to Study Business Wargaming in the P-LEO SATCOM Marketplace. In 2024 IEEE Conference on Games (CoG) (pp. 1-8).
- Rao, A., 2024. Close Encounters of the LEO Kind: Spillovers and Resilience in Partially-Automated Traffic Systems. arXiv preprint, arXiv:2410.04599.
- Corrado, L., Cropper, M. and Rao, A., 2023. Space exploration and economic growth: New issues and horizons. *Proceedings of the National Academy of Sciences*, 120(43), p.e2221341120.
- Guyot, J., Rao, A. and Rouillon, S., 2023. Oligopoly competition between satellite constellations will reduce economic welfare from orbit use. *Proceedings of the National Academy of Sciences*, 120(43), p.e2221343120.
- Qureshi, R.S., Roberts, C., Kimbrell, E., Mulder, S., Rao, A., Tauritz, D.R. and Guzzetti, D., 2023. A table-top game to simulate competition between P-LEO satellite internet constellations. In 2023 AIAA/AAS Astrodynamics Specialist Conference.
- Osoro, O.B., Oughton, E.J., Wilson, A.R. and Rao, A., 2023. Sustainability assessment of Low Earth Orbit (LEO) satellite broadband megaconstellations. arXiv preprint, arXiv:2309.02338.
- Rao, A., Moretto, M., Holzinger, M., Kaffine, D. and Weeden, B., 2023. OPUS: An Integrated Assessment Model for Satellites and Orbital Debris. arXiv preprint, arXiv:2309.10252.
- Ash, T., Bento, A.M., Kaffine, D., Rao, A. and Bento, A.I., 2022. Disease-economy trade-offs under alternative epidemic control strategies. *Nature Communications*, 13(1), p.3319.
- Rao, A. and Letizia, F., 2022. An integrated debris environment assessment model. arXiv preprint, arXiv:2205.05205.
- Jain, A. and Rao, A., 2022. International cooperation and competition in orbit-use management. arXiv preprint, arXiv:2205.03926.
- Guyot, J., Rao, A. and Rouillon, S., 2022. The long-run economics of sustainable orbit use. In *Routledge Handbook of Space Policy* (pp. 195-214).
- Rao, A., Burgess, M.G. and Kaffine, D., 2020. Orbital-use fees could more than quadruple the value of the space industry. *Proceedings of the National Academy of Sciences*, 117(23), pp.12756-12762.
- Bennett, T., Cain, C., Campbell, N.S., Gerner, A.J., Marino, J. and Niederwieser, T., 2018. The CENKI space economic simulator: Demonstrating agent-based modeling on satellite market data. In 2018 IEEE Aerospace Conference (pp. 1-13).
- Bennett, T., Cain, C., Campbell, N.S., Gerner, A.J., Marino, J. and Niederwieser, T., 2018. The CENKI space economic simulator: Analytical verification of an agent-based modeling engine. In 2018 IEEE Aerospace Conference (pp. 1-9).