

## Justin Grana

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CONTACT	Justn Grana 1200 S. Hayes St Arlington, Virginia 22202	<i>Phone:</i> 703-413-1100x5723 <i>E-mail:</i> jgrana@rand.org
PROFESSIONAL EXPERIENCE	<b>RAND Corporation</b> <i>Associate Economist and Core Faculty Pardee RAND Graduate School</i> <b>Santa Fe Institute</b> <i>Postdoctoral Researcher</i> <b>Institute of Spatial Economic Analysis (ISEA)</b> <i>Economic Consultant</i>	Washington, DC 2018 - Present Santa Fe, NM 2015 - 2017 Redlands, CA 2014 - Present
EDUCATION	<b>American University</b> <i>Ph.D., Economics</i>  <i>Dissertation:</i> Behavior Based Cyber Security: Employing Tools from Traditional and Behavioral Game Theory to Improve Attack Detection  <i>Advisors:</i> Professors Alan Isaac (chair), David Wolpert (Santa Fe Institute), and Nathan Larson  <b>Xavier University</b> <i>B.S.B.A., Economics</i> <i>B.A. Spanish</i>	Washington, DC 2016          Cincinnati, OH 2010
TEACHING EXPERIENCE	<b>Core Faculty</b> <i>Game Theory</i>  <b>Adjunct Professor</b> <i>Introductory Macroeconomics</i>  <b>Teaching Assistant</b> <i>12+ Undergraduate, Masters and Ph.D. Economics Courses</i>	Pardee RAND Graduate School 2018-Present American University 2013 American University 2010-2014
JOURNAL PUBLICATIONS	<b>Grana, Justin</b> , Wolpert, D., Neil, J., Xie, D., Bhattacharya, T. & Bent, R. A likelihood ratio anomaly detector for identifying within-perimeter computer network attacks. <i>Journal of Network and Computer Applications</i> <b>66</b> , 166–179 (2016)  Menda, K., Chen, Y.-C., <b>Grana, Justin</b> , Bono, J. W., Tracey, B. D., Kochenderfer, M. J. & Wolpert, D. Deep Reinforcement Learning for Event-Driven Multi-Agent Decision Processes. <i>IEEE Transactions on Intelligent Transportation Systems</i> , 1–10 (2018)	
REFEREED CONFERENCE PROCEEDINGS	Bono, J. W., Wolpert, D., Xie, D. & <b>Grana, Justin</b> . <i>Decision-theoretic prediction and policy design of gdp slot auctions</i> in <i>14th AIAA Aviation Technology, Integration, and Operations Conference</i> (2014), 2163  Kim, Y., Kochenderfer, M. J., <b>Grana, Justin</b> , Bono, J. & Wolpert, D. <i>Optimal lost-link policies for unmanned aircraft</i> in <i>Digital Avionics Systems Conference (DASC), 2015 IEEE/AIAA 34th</i> (2015), 5C1–1	
WORKING PAPERS	<b>Grana, Justin</b> , Bono, J. & Wolpert, D. Reasoning About When Instead of What in Repeated Oligopoly: Collusive Equilibria with Stochastic Event Times (2016) ( <i>Revise and Resubmit</i> )  Wolpert, D., <b>Grana, Justin</b> & Foley, D. How much would you pay to change a game before playing it? (2016) ( <i>Submitted</i> )	

GRANTS, AWARDS & SUPPORT     **Army Research Office**, Grant ARO BAA W911NF-12-R-0012-02. *Event-Driven Game Theory for Predicting Dynamical Systems* (2015)  
                         **NASA**, Grant NNH13ZEA001N-SSAT: B.2-AFCS-1.6 *Event-Driven Game Theory for Air Traffic Control and Unmanned Aircraft* (2014)  
                         **Info-metrics**, Graduate Summer Fellowship (2014)  
                         **American University**, College of Arts and Science Fellowship (2010-2014)  
                         **Xavier University**, Department of Economics Advisory Board Research Scholarship, (2009)

INVITED TALKS    Santa Fe Institute, Biological Circuit Evolution, (December, 2016)  
                         Santa Fe Institute, Circumventing Achilles Heel, (October, 2016)  
                         University of Redlands, School of Business, (August, 2016)  
                         Los Alamos National Lab, Center for Nonlinear Studies (August, 2014)

SOFTWARE PROFICIENCIES    Python, Julia, R, SAS, STATA, MATLAB, Unix, ArcGIS, SQL, Bash, Go, Mathematica, AWS, Github, TensorFlow