

# Venkata Ramana Makkapati

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mvramana@gatech.edu  
<https://vrmakkapati.github.io/>

EDUCATION	<i>Doctor of Philosophy</i> , Aerospace Engineering Georgia Institute of Technology Focus: Optimal control under uncertainties, Autonomous vehicles, Hypersonic vehicles, Cognitive hierarchy theory, Pursuit-evasion games Advisor: Prof. Panagiotis Tsiotras	Aug' 2016 - <i>Present</i>
	<i>Master of Science</i> , Computational Science and Engineering Georgia Institute of Technology Focus: Machine Learning	Aug' 2017 - <i>Present</i>
	<i>Master of Technology</i> , Aerospace Engineering Indian Institute of Technology Kanpur Focus: Flight Dynamics and Control Advisor: Dr. Mangal Kothari	July 2014 - May 2016
	<i>Bachelor of Technology</i> , Aerospace Engineering Indian Institute of Technology Madras Minor: Industrial Engineering	July 2010 - May 2014
EXPERIENCE	<i>Research Intern</i> Foresight AI Inc, San Jose, CA Topic: Research and development of motion planning and driving decision algorithms & software Mentor: Dr. Matheen Siddiqui	May 2019 - Aug' 2019
	<i>Summer Intern</i> Vehicle Integration Department, Mahindra & Mahindra, Chennai Topic: Approximation methods for the modal analysis of an exhaust system	May 2013 - July 2013
	<i>Summer Intern</i> Flight Mechanics and Control Division, CSIR-NAL, Bangalore Topic: Evaluation of free-to-roll test technique to study unsteady motions of an aircraft. Mentor: Dr. Mallesh Bommanahal	May 2012 - July 2012
ARTICLES	<i>DesNets: Desensitized Deep Neural Networks</i> V. R. Makkapati, H.Sarabu and J. Hoffman (in preparation)	
	<i>DOC based Safe Path Planning under Parametric Uncertainties</i> V. R. Makkapati, H. Sarabu, V. Comandur, P. Tsiotras and S. Hutchinson (in preparation)	
	<i>Covariance Steering for Discrete-Time Linear-Quadratic Stochastic Dynamic Games</i> V. R. Makkapati, T. Rajpurohit, K. Okamoto and P. Tsiotras (in preparation)	

*Optimal Evading Strategies and Task Allocation in Multi-Player Pursuit-Evasion Problems*

V. R. Makkapati and P. Tsiotras

Dynamic Games and Applications, 2019

*Nested Saturation based Guidance Law for Unmanned Aerial Vehicles*

J. Patrikar, V. R. Makkapati, A. Pattanaik, H. Parwana, and M. Kothari

ASME Journal of Dynamic Systems, Measurement, and Control, 2019

*Optimal Evading Strategies for Two-Pursuer/One-Evader Problems*

V. R. Makkapati, W. Sun, and P. Tsiotras

Journal of Guidance, Control, and Dynamics (JGCD), 2018

*A Comprehensive Differential Game Theoretic Solution to a Game of Two Cars*

R. Bera, V. R. Makkapati, and M. Kothari

Journal of Optimization Theory and Applications (JOTA), 2017

*Pursuit-Evasion Games of High Speed Evader*

M. V. Ramana and M. Kothari

Journal of Intelligent & Robotic Systems (JINT), 2017

*Pursuit Strategy to Capture High-Speed Evaders Using Multiple Pursuers*

M. V. Ramana and M. Kothari

Journal of Guidance, Control, and Dynamics (JGCD), 2016

## **PROCEEDINGS & TALKS**

*C-DOC: Co-State Desensitized Optimal Control*

V. R. Makkapati, D. Maity, M. Dor, and P. Tsiotras

American Control Conference (ACC), 2020 (submitted)

*Sequential Auto-Landing of Multiple UAVs using Control Constrained Path Following*

J. Patrikar, V. R. Makkapati, and M. Kothari

AIAA Guidance, Navigation, and Control Conference (GNC), SciTech, 2019

*Trajectory Desensitization in Optimal Control Problems*

V. R. Makkapati, M. Dor, and P. Tsiotras

IEEE Conference on Decision and Control (CDC), 2018

*Optimal Strategies and Task Allocation in Multi-Pursuer Single-Evader Problems*

V. R. Makkapati and P. Tsiotras

International Symposium on Dynamic Games and Applications, 2018 ([Invited Talk](#))

*Pursuit-Evasion Problems Involving Two Pursuers and One Evader*

V. R. Makkapati, W. Sun, and P. Tsiotras

AIAA Guidance, Navigation, and Control Conference (GNC), SciTech, 2018

*Motion Planning for a Fixed-Wing UAV in Urban Environments*

M. V. Ramana, S. A. Varma, and M. Kothari

IFAC Conference on Advances in Control and Optimization of Dynamical Systems (ACODS), 2016

*A Cooperative Pursuit-Evasion Game of a High Speed Evader*

M. V. Ramana and M. Kothari

AIAA Guidance, Navigation, and Control Conference (GNC), SciTech, 2016

*A Cooperative Pursuit-Evasion Game of a High Speed Evader*  
*M. V. Ramana* and M. Kothari  
IEEE Conference on Decision and Control (CDC), 2015

**SKILLS**

Python, MATLAB, Simulink, C

**SERVICE**

*Consultative Group* June 2019 - Present  
Office of Principal Scientific Adviser, Government of India

*Reviewer*  
Automatica  
IEEE Transaction on Automatic Control  
IEEE Robotics and Automation Letters  
Dynamics Games and Applications  
Journal of Aerospace Information Systems  
Journal of Air Transportation  
International Conference on Robotics and Automation (ICRA 2020)  
IEEE Conference on Decision and Control (CDC 2019)  
American Control Conference (ACC 2020, 2018)  
AIAA Scitech Forum (GNC 2019, 2018)  
Advances in Control and Optimization of Dynamical Systems (ACODS 2016)

**TEACHING**

*Graduate Teaching Assistant* Aug' 2018 - *Present*  
Optimal Guidance & Control, Multi-variable Linear Systems and Control

*Teaching Assistant* Aug' 2013 - May 2014  
Flight Dynamics, Flight Stability & Control

**EXTRA-  
CURRICULAR  
ACTIVITIES**

*Long Distance Running*  
*Bronze medal* in the Dean's Trophy Road Race 2014 at IIT Madras  
*Team record* for running the longest distance of 87 km on a treadmill in 6 hours at  
Treadathon 2014, Chennai.

*National Cadet Corps (NCC)*  
*Leading Flight Cadet* with *B Certificate* in the NCC examination