

Niladri Das

CONTACT INFORMATION	Aerobotics Lab, #201, Reed-McDonald Bldg, Dept. of Aerospace Engineering, Texas A&M, 575 Ross St, College Station, TX 77843	E-Mail : niladridas@tamu.edu GitHub : github.com/niladridas Homepage : www.niladridas.com
CURRENT POSITION	Ph.D. candidate working on: <ul style="list-style-type: none">• Non-Linear filtering and estimation (applied to Space Situational Awareness)• Optimal sensing architecture design.	
EDUCATION	<p>Doctor of Philosophy in Aerospace Engineering Texas A&M University, USA Dissertation: Optimal Transport based non-linear filtering and optimal sparse sensing architecture design. (tentative)</p> <p>Master of Technology in Electrical Engineering Indian Institute of Technology Kanpur, India Dissertation: Learning to Grasp & Programming by Demonstration Using a 7-DOF Barrett Arm.</p> <p>Bachelor of Engineering in Electrical Engineering Jadavpur University, Kolkata, India Project: Image Processing Based Object Detection.</p>	<p>Adviser: Dr. R. Bhattacharya 2015 - Present GPA: 3.826/4</p> <p>Adviser: Dr. L. Behera 2012 - 2014 GPA : 7.91/10</p> <p>Adviser: Dr. A. Chatterjee 2008 - 2012 GPA : 7.84/10</p>
EXPERIENCES	<p><i>Winner of A-Hack-of-the-Drones</i> Our A-Team from Texas A & M won the A-Hack-of-the-Drones competition held with USArmy Futures Command and MD5NET in Austin Texas</p> <p><i>Graduate Assistant Researcher</i> Dept. of Aerospace Engineering, Texas A&M. Worked on an Air Force Project (AFOSR) about Space Situational Awareness. It involves collaborating with Dept. of Statistics of TAMU, developing and implementing particle based non-linear filters. Currently working on a AFRL project (with IFT and Lockheed Martin as team members).</p> <p><i>Project Associate</i> Dept. of Electrical Engineering, IIT Kanpur Worked on a project to implement Non-linear control technique (Higher Order Sliding Mode Control) on 7 degree of freedom Barrett WAM. Developed physics based Inverse Dynamic Model. Developed Gaussian Mixture based model to compensate the unknown non-linearities. This work led to a conference publication.</p> <p><i>Project Associate</i> Dept. of Electrical Engineering, IIT Kanpur Worked on a project to develop dynamical system based trajectory learning for a 7 DoF robot arm. Implemented Gaussian Mixture based model to learn trajectories from Kinesthetic teaching. Developed a method to relax the restriction of unique attractor point during training. This work lead to a conference publication.</p> <p><i>Graduate Research Experience</i> Dept. of Electrical Engineering, IIT Kanpur Worked on the Masters Thesis. This work involved solving inverse kinematic problem for a 7 DoF Redundant Manipulator, implementing Kinect based Object segmentation for grasping using Deep Learning, developing a hand-eye autonomous calibration technique and eventually implementing Symbolic Encoding based skill learning. This thesis led to a conference publication.</p>	<p>28-30 Sep,2018.</p> <p>Adviser: Dr. R. Bhattacharya Sep 2015-Present</p> <p>Adviser: Dr. L. Behera Jan 2015 - Jun 2015</p> <p>Adviser: Dr. L. Behera Aug 2014 - Jan 2015</p> <p>Adviser: Dr. L. Behera July 2013-July 2014</p>

Student Mentoring

Dept. of Electrical Engineering, IIT Kanpur
Intelligent Systems Laboratory

- As a Project Assistant supervised a Masters student for his thesis
- As a Project Assistant taught two Masters student how to use Robot Operating System
- As a Master student mentored two Under-Graduate intern. They worked on implementing Deep Learning, learned how to use Point Cloud Library and Barrett WAM programming.

PUBLICATIONS *Conferences*

- “Sparse Sensing Architecture For Kalman Filtering With Guaranteed Error Bound.” 2017 1st IAA Conference on Space Situational Awareness, Orlando, Florida.
- “Control of a 4 DoF Barrett WAM Robot - Modeling, Control Synthesis and Experimental Validation.” 2016 IEEE First International Conference on Control, Measurement and Instrumentation
- “Learning Object Manipulation from Demonstration through Vision for the 7-DOF Barrett WAM.” 2016 IEEE First International Conference on Control, Measurement and Instrumentation
- “A probabilistic framework of learning movement primitives from unstructured demonstrations.” 2015 IEEE 13th International Conference on Industrial Informatics
- “Robot Learns from Human Teacher Through Modified Kinesthetic Teaching.” 2014 International conference on Advances in Control and Optimization of Dynamic Systems

Journals

- “Optimal Transport Based Tracking of Space Objects in Cylindrical Manifolds”. Journal of Astronautical Sciences (Springer) [**under first review**]
- “Optimal Transport based Tracking of Space Objects using Range Data from a Single Ranging Station”. Journal of Guidance, Control, and Dynamics [**under second review**]

SKILLS

Programming Languages

C , C++ , Python, Julia

Softwares Packages

Matlab, L^AT_EX, Robot Operating System.

ORGANISATIONS

- AGSC: *Aerospace Graduate Student Council*
 - Student Council Member of Aerospace Engineering Department at Texas A&M University. (Academic Year 2017)
 - GPSC: Graduate and Professional Student Council delegate of Aerospace Department.(Academic Year 2017)
 - Student Council Mentor of Aerospace Engineering Department at Texas A&M University. (Academic Year 2018)
- Other Organisations: AIAA, IEEE, SIAM.

PRIMARY REFEREE

- Raktim Bhattacharya
Associate Professor, Departement of Aerospace Engineering
Texas A&M University
Office: HRBB 727C
Phone: 979.862.2914
Email: raktim@tamu.edu