Lakshmi Gana Prasad Antervedi

CONTACT INFORMATION:
• +351-936302394 • alg.prasad94@gmail.com • github.com/algprasad • https:/www.linkedin.com/in/algprasad

RESEARCH INTERESTS
Visual SLAM, Robot perception, Computer Vision, Machine Learning, Deep Learning, Multi-Robot Systems, Space robotics, Aerial robotics

EDUCATION

Delhi Technological University (Formerly, Delhi College of Engineering) **New Delhi, India**
Bachelor of Technology | Mechanical Engineering | First Class, Aggregate: 67.72 Aug 2012 – June 2016

RESEARCH EXPERIENCE

Instituto Superior Técnico | Intelligent Robots and Systems Group **Lisbon, Portugal**
Research Engineer | Space CoBot Project Oct 2017 – Present

- Developed a ROS-based monocular Visual-Inertial SLAM system using GTSAM library in C++ for a freeflyer robotic assistant that is being developed to assist astronauts in microgravity environments.
- Improved accuracy and computational efficiency of the algorithm by incorporating fiducial marker measurements and employing incremental optimization algorithm (iSAM2) in a factor graph formulation.
- Implemented a Non-linear Model Predictive Control based position and attitude controller for the freeflyer in C++ and tested it on the real prototype on a frictionless-table setup
- Leveraged knowledge in GIT, Test Driven Development in C++, ROS, conducted simulations of the freeflyer in Gazebo.

Technische Universität Braunschweig | Institute for Space Systems **Braunschweig, Germany**
Visiting Researcher April2019 -June 2019

- Developed, implemented and tested position and attitude controllers based on novel sliding-mode control strategy using dual-quaternion notation in C++ for a satellite prototype.

BubbleFly Technologies **New Delhi, India**
R&D Engineer- Aerial Robotics June 2016- Oct. 2017

- Worked on avionics integration, parameter tuning, and flight testing of custom multirotor drones equipped with RTK-GPS, Lidar, cameras, PX4 enabled autopilot and optical flow sensor for aerial surveying and urban mapping applications. Successfully completed large-scale urban mapping projects in two Indian cities: Lucknow and Nagpur

UNDERGRADUATE RESEARCH PROJECTS

Lockheed Martin-DTU Project | Delhi Technological University, India | **New Delhi, India**
Airframes and Autonomy Engineer | Unmanned Aerial Systems Student Team Oct 2012 – June 2016
Lockheed Martin signed a Memorandum of Understanding with Delhi Technological University to develop next-generation Urban Unmanned Aerial Vehicle (UAV).

- Incorporated Genetic Algorithm in the UAV design algorithm to optimize the Wing and Power Loading parameters which reduced the empty weight by 35%. Demonstrated the UAV flight to Lockheed Martin officials in June 2015. Published the algorithm and results in IJAPIE 2016.

INTERNATIONAL COMPETITIONS

AUVSI Student Unmanned Air Systems Competition | Maryland, USA

In 2014: Secured World Rank **third** overall. **Second** in Journal paper presentation. **First** in Flight Readiness.

In 2013: Secured World Rank **sixth** overall. **Fifth** in Journal paper presentation. **Second** in Flight Readiness.

- Developed programs for autonomous target segmentation and recognition from aerial imagery using OpenCV in C++.
- Worked on parameter tuning of the flight controller for autonomous take-off, waypoint navigation and landing of a catapult launched tail-less UAV.

PUBLICATIONS

- **Prasad A.,** Raghava N.S., Srinivas K., "Design of UAV and its optimisation using genetic algorithm", International Journal of Advanced Production and Industrial Engineering (IJAPIE), ISSN: 2455-8419, Vol 1 Issue 4, September 2016.

SKILLS

C, C++, Python, MATLAB, Linux, ROS, Gazebo, V-REP, LaTeX, Git

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REFERENCES

1) **Dr. Rodrigo Ventura**: Assistant Professor, Instituto Superior Tecnico, Lisbon, Portugal
Email: rodrigo.ventura@isr.tecnico.ulisboa.pt

2) **Dr. Raj Kumar Singh**: Professor, Delhi Technological University Delhi, India
Email: rajkumarsingh@dce.ac.in

ONLINE COURSES

- Deep Learning specialization : Stanford University, Coursera
- Algorithms and Data Structures- Specialization Course by University of California, San Diego, Coursera
- Introduction to Engineering Simulations- Cornell University (EdX)
- Aerial Robotics : University of Pennsylvania, Coursera
