Devakumar Thammisetty

Trivandrum, Kerala, India
Scientist, ISRO
devakumar.thammisetty@gmail.com

https://devakumar.github.io/
+91 8301023892
LinkedIn

Strengths

- Excellent analytical & programming aptitude in modeling, controls and automation (Python)
- Experienced in multidisciplinary projects(Software/Mechanical), good communication skills
- Research oriented, goal driven problem solving abilities and effective team player

Interests: Deep reinforcement learning & machine learning for controls, robotics and automation

Education

2018- 2020

Master of Science in Mechanical Engineering, EPFL, Lausanne (GPA : 5.51/6)
École Polytechnique Fédérale de Lausanne, Switzerland (2020)
Focus: Control & Automation, Minor in Management and Technology
Thesis: Development of Multi-phase Optimal Control Software (Automatic Control Laboratory, Thesis Director: Prof. Colin Jones, **Grade: 6/6**)

2008 – 2012

Bachelor of Technology Aerospace Engineering, IIT Bombay(GPA : 8.72/10)
Indian Institute of Technology Bombay, India (2012)

Professional Experience

2012 –till date

Scientist, Indian Space Research Organisation (ISRO), India

Focus: System engineering, mathematical modeling, controls & simulations

Project I: Moon lander thrust control algorithm development (2023)

- *Developed real-time thrust control algorithm for ISRO's Moon lander and successfully demonstrated the performance in experiments.*
- *The algorithm worked on the dot during India's moon soft landing attempt on 23 August 2023 resulting in a successful soft landing.*

Project II: Technical lead, Cryogenic Engine Development (2018)

- *System modeling, thrust control algorithm and software development in python. System engineering of engines for India's space program.*
- *Contributed to the successful development of the GSLV launch vehicles.*

July –Sep'19

Engineering Internship, Asyril SA, Switzerland (Computer Vision, OpenCV)

Skills: OpenCV 4.1, Python programming, Agile software development
Developed and tested various vision algorithms for object localization and recognition using OpenCV. Feature identification, large scale in-house databases.

Projects and Research Experience

Mar - Jun'20

Master Thesis : Development of Multi-phase Optimal Control Software - Python (Automatic Control Laboratory, Thesis Director: Prof. Colin Jones) [MPOPT]

Skills : Optimal control, numerical optimization, software development

Developed a state of art, novel and open-source software package in python for solving optimal control problems encountered in numerous scientific disciplines including aerospace engineering and robotics (22k+ downloads as of Sep. 2023).

Sep–Dec'19

Semester project: Embedded Real time optimization of a fuel cell system

Skills: Optimization of constrained nonlinear systems in real time, Quadratic Programming, C++, Model Predictive Control. (Direction: Prof. Colin Jones, LA3)

Optimizing performance index of a fuel cell system subject to constraints. numerical optimization methods, nonlinear system dynamics, Sequential Quadratic Programming(SQP) along with ADMM based QP solver.

Feb – Jun'19

Semester project: Interdisciplinary EPFL robotics competition (Team of 3)

Skills: Arduino, Raspberry pi, computer vision(Direction: Prof. Auke Jan Ijspeert).

Built a mobile robot which autonomously localizes and navigates in a given terrain [Video]. Programmed various vision based algorithms in Raspberry Pi. Implemented Kalman Filtering, State Machine and control with sensor feedback.

Skills

Technical

- Nonlinear Optimization, Control, MPC, Computer Vision, System engineering
- Machine learning, Data science, Operations management

Programming

- Python – numpy, scipy, pandas, scikit-learn, OpenCV, PyQt4, Django
- MATLAB/Simulink, OpenFOAM, ParaView, Gmsh
- C++, Eigen, CasADi, Qt4
- Documentation: Microsoft Excel, Word, Power point, LaTeX, Html5, Readthedocs
- Version control: git, hg(Mercurial)

Language

- English (Fluent), Hindi (Fluent) – Read, Write, Listen and Speak
- French (Beginner) – A1 level course work at EPFL
- Telugu (Mother tongue) - Read, Write, Listen and Speak

Awards

- **Young Engineer Award** by Indian National Academy of Engineering (INAE)[Profile].
- **ISRO Team Excellence Award** for contribution towards maiden launch of GSLV-MkIII rocket.

Extra-curricular activities

Sports

- Table Tennis (Ping-pong), Cricket

Other

- Travel, hiking, reading non-fiction

Personal details

Citizenship

- Indian

Civil Status

- Married