Raghu Ram Theerthala

PERSONAL DETAILS

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EDUCATION

MSc. ECE   `2017-present`
International Institute of Information Technology,Hyderabad

B.Tech ECE   `2013-2017`
Sree Vidyanikethan Engineering College,Tirupati

WORK EXPERIENCE

Research scholar   `2017-present`
Robotics Research Center,IIIT Hyderabad

I work in Motion planning specifically in model predictive control. My interests include Reinforcement learning,Path planning. I have worked in system identification in Autonomous driving and submitted my work to ACC(American Control Conference).

TECHNICAL SKILLS

Coding	Python
	C
	C++
Software	MATLAB, LATEX, OCTAVE, TORCS
OS	Ubuntu,Unix,Windows

AREAS OF INTEREST

- Optimal control

- Model Predictive Control

- Reinforcement Learning

AWARDS

Runner up in Startup Idea Pitching Competition - CIE,IIIT Hyderabad

PROJECTS

Model Predictive control for Autonomous Driving Considering Actuator Dynamics (*Submitted to ACC* − 2019)

In this project we tried to model the actuator dynamics and couple it with collision avoidance constraints.One more interesting feature is we tried alternating minimization approach which reduces the complexity of optimization framework.We have showed multiple scenarios which utilizes the actuator dynamics we modelled to maintain safe distance between the ego vehicle and other vehicles.

Speed Estimation of Homography in mobile devices

In this project we tried to speedup the homography estimation by adding the geometric constraint which avoids considering unwanted samples in RANSAC, which causes visual stalls especially in mobile devices. Later we have demonstrated this on Raspberry Pi.

Image Colorization using SURF and GABOR features

In this project we tried to colorize a new image based on the features extracted from a similar image using Surf and gabor features. Then we did cascade feature matching to match the clusters.

Twin face Recognition

In this projected we majorly did feature matching using KNN and SVM to check whether the images are twin pairs or not.I have implemented KNN and SVM part in this project.

CURRENT WORK

Three Circle Vehicle approximation

Usually the vehicles in motion planning are approximated to single circle to reduce computational complexity. However by approximating the vehicle as three circle we get an advantage of better approximation of vehicle and this provides extra space advantage when the road is filled with vehicles.

Inclusion of Road Boundaries

In basic formulations the road constraints usually are modelled as imaginary obstacles.But I tried to model the constraints through spline parameterization for better inclusion of road boundaries.Further I am trying to couple planning frameworks with DQNs to include higher level decisions into optimization.

LANGUAGES KNOWN

- English

- Hindi

- Telugu