

Supplementary Reading: Introduction to Lateral Vehicle Control

To learn more about the lateral control of autonomous vehicles, read the article below:

J. Jiang and A. Astolfi, "Lateral Control of an Autonomous Vehicle," in IEEE Transactions on Intelligent Vehicles, vol. 3, no. 2, pp. 228-237, June 2018.

URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=8286943&isnumber=8363076>

To compute the minimum distance to a curved path defined by a spline:

Wang, H., Kearney, J., & Atkinson, K. (2002, June). Robust and efficient computation of the closest point on a spline curve. In Proceedings of the 5th International Conference on Curves and Surfaces (pp. 397-406). URL : http://homepage.divms.uiowa.edu/~kearney/pubs/CurvesAndSurfaces_ClosestPoint.pdf

Supplementary Reading: Geometric Lateral Control - Pure Pursuit

To learn more about Pure Pursuit Control, read the PDF listed below:

Snider, J. M., "Automatic Steering Methods for Autonomous Automobile Path Tracking", Robotics Institute, Carnegie Mellon University, Pittsburg (February 2009). https://www.ri.cmu.edu/pub_files/2009/2/Automatic_Steering_Methods_for_Autonomous_Automobile_Path_Tracking.pdf.

Supplementary Reading: Geometric Lateral Control - Stanley

To learn more about the Stanley Control, check out the PDF listed below:

Snider, J. M., "Automatic Steering Methods for Autonomous Automobile Path Tracking", Robotics Institute, Carnegie Mellon University, Pittsburg (February 2009). https://www.ri.cmu.edu/pub_files/2009/2/Automatic_Steering_Methods_for_Autonomous_Automobile_Path_Tracking.pdf.

You can also read the original paper by Der. Hoffmann et al. in the PDF below:

Hoffmann, G. et al., "Autonomous Automobile Trajectory Tracking for Off-Road Driving: Controller Design, Experimental Validation and Racing", Stanford University, (2007). http://ai.stanford.edu/~gabeh/papers/hoffmann_stanley_control07.pdf

Supplementary Reading: Advanced Steering Control - MPC

To learn more about Model Predictive Control (MPC) for vehicle control, read the ar below:

Falcone, P. et al., "Predictive Active Steering Control for Autonomous Vehicle Systems", IEEE (2007). <https://ieeexplore.ieee.org/document/4162483>