

Development and testing of driving and braking control strategies for independent wheel drive electric vehicle (thesis @ POLIMI, refer to Ing. Vignati and Prof. Sabbioni)

The spreading of electric vehicles offers new design for the powertrain. The use of multiple electric motors (EM), one per each wheel, shows significant benefits when controlling the vehicle dynamics with torque vectoring. Furthermore, novel antilock braking strategies can be adopted exploiting the advantages offered by electric motor with respect to hydraulic brakes. However, the braking performance of EMs is too poor for very high deceleration maneuvers. A strategy for vehicle with independently driven wheels that distributes the required braking torque and the required torque vectoring moment among the four motors and the four hydraulic brakes must be designed.

Prerequisites: Vehicle dynamics and control (mandatory), hybrid and electric vehicles (suggested).