Appendix 2

Online Information

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In addition to this book, a number of simulation models can be found on the companion website:

http://booksite.elsevier.com/9780080970165/

The software has been developed with *MATLAB* R2007b, but also works with newer *MATLAB* versions. A *MATLAB* installation including *Simulink* is needed to use the models, but no additional toolboxes are required.

The models provided consist of:

TreadSim

TreadSim is the brush tire model as discussed in Section 3.3 of this book. It is capable of returning the steady state force and moment characteristics for various slip conditions, including turn slip. Only a limited number of physical parameters are needed to obtain these results.

Single track vehicle model

The theory of the linear single-track vehicle model with two degrees of freedom is explained in Section 1.3.2. A comparison of this model with experimental data is made using different vehicle tests, e.g. steady state cornering, J-turn, double lane change, and random steer. Extensions to include tire relaxation behavior and saturation of the tire forces are also made available.

Double track roll axis vehicle model

Based on the equations provided in Section 1.3.1 a vehicle model with four tires is developed. This model includes the longitudinal and body roll degree of freedom. It allows us to investigate, e.g., braking in a turn and the effect of suspension compliance on vehicle handling behavior. It can be extended easily to include four-wheel steering and torque vectoring.

Additional models and exercises may be provided by the companion website, but they are still to be defined at the time of writing.