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| | Note generali | Description based upon print version of record. |
| | Nota di bibliografia | Includes bibliographical references and index. |
| | Nota di contenuto | Introduction -- Pressure estimation of wet clutch -- Torque phase control of clutch-to-clutch shift process -- Inertia phase control of clutch-to-clutch shift process -- Torque estimation of vehicle drive shaft -- Clutch disengagement timing control of AMT gear shift -- Clutch engagement control of AMT gear shift -- Data-driven start-up control of AMT vehicle -- Appendix. |
| | Sommario/riassunto | Nonlinear Estimation and Control of Automotive Drivetrains discusses the control problems involved in automotive drivetrains, particularly in hydraulic Automatic Transmission (AT), Dual Clutch Transmission (DCT) and Automated Manual Transmission (AMT). Challenging estimation and control problems, such as driveline torque estimation and gear shift control, are addressed by applying the latest nonlinear control theories, including constructive nonlinear control (Backstepping, Input-to-State Stable) and Model Predictive Control (MPC). The estimation and control performance is improved while the calibration effort is reduced significantly. The book presents many detailed examples of design processes and thus enables the readers to understand how to successfully combine purely theoretical methodologies with actual applications in vehicles. The book is intended for researchers, PhD |

students, control engineers and automotive engineers. Hong Chen is a professor at the State Key Laboratory of Automotive Simulation and Control, and the Department of Control Science and Engineering at Jilin University. Bingzhao Gao is an associate professor at the State Key Laboratory of Automotive Simulation and Control at Jilin University.