

1. Record Nr.	UNINA9910484694803321
Autore	Taghia Javad
Titolo	Applied guidance methodologies for off-road vehicles // Javad Taghia, Jayantha Katupitiya
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-030-42359-X
Edizione	[1st edition 2020.]
Descrizione fisica	1 online resource (xiv, 137 pages)
Collana	Springer Tracts in Advanced Robotics, , 1610-7438 ; ; 138
Disciplina	623.74
Soggetti	Robotics Artificial intelligence Automated vehicles - Control Off-road vehicles
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Introduction -- Modelling Vehicle Systems -- Offset Models of Vehicles -- Design of Controllers -- Implementation of Controllers -- Conclusion.
Sommario/riassunto	This book provides methodologies for designing and implementing guidance algorithms for autonomous vehicles. These algorithms make important decision regarding how to steer and drive a ground vehicle in order to safely stay on an intended path, thereby making the vehicle driverless. The design tools provided in this book enable the reader to develop highly practical and real-world implementable guidance algorithms that will deliver high-accuracy driving for field vehicles. (They are equally applicable for on-road vehicles.) The book covers a variety of vehicle types, including wheeled vehicles, tracked vehicles, wheeled and tracked vehicles towing trailers, and four-wheel-steer and four-wheel-drive vehicles. It also covers active trailers that are driven and steered. Vehicles used in agriculture, mining and road construction are subjected to unpredictable and significant disturbances. The robust control methodologies presented can successfully compensate for these disturbances, as confirmed by the experimental results presented. Though the majority of the methodologies presented are based on sliding-mode controllers, other robust control methodologies

are also discussed. To help the reader decide which controller is best suited for his/her choice of vehicle, experimental results are presented in a comparative format. .
