Intelligent Vehicles
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Authors: Alberto Broggi, Alex Zelinsky, Umit Ozguner, Christian Laugier

This chapter describes the emerging robotics application field of intelligent vehicles – motor vehicles that have autonomous functions and capabilities.
The chapter is organized as follows:

- Section 62.1 provides a motivation for why the development of intelligent vehicles is important, a brief history of the field, and the potential benefits of the technology.
- Section 62.2 describes the technologies that enable intelligent vehicles to sense vehicle, environment, and driver state, work with digital maps and satellite navigation, and communicate with intelligent transportation infrastructure.
- Section 62.3 describes the challenges and solutions associated with road scene understanding – a key capability for all intelligent vehicles.
- Section 62.4 describes advanced driver assistance systems, which use the robotics and sensing technologies described earlier to create new safety and convenience systems for motor vehicles, such as collision avoidance, lane keeping, and parking assistance.
- Section 62.5 describes driver monitoring technologies that are being developed to mitigate driver fatigue, inattention, and impairment.
- Section 62.6 describes fully autonomous intelligent vehicles systems that have been developed and deployed.
- Sections 62.7 and 62.8 conclude the chapter with a discussion of future prospects, and provide references to further reading and additional resources.