DESCRIPTION

Offers a step-by-step guide to building autonomous vehicles and robots, with source code and accompanying videos

The first book of its kind on the detailed steps for creating an autonomous vehicle or robot, this book provides an overview of the technology and introduction of the key elements involved in developing autonomous vehicles, and offers an excellent introduction to the basics for someone new to the topic of autonomous vehicles and the innovative, modular-based engineering approach called DragonFly.

*Engineering Autonomous Vehicles and Robots: The DragonFly Modular-based Approach* covers everything that technical professionals need to know about: CAN bus, chassis, sonars, radars, GNSS, computer vision, localization, perception, motion planning, and more. Particularly, it covers Computer Vision for active perception *and* localization, as well as mapping and motion planning. The book offers several case studies on the building of an autonomous passenger pod, bus, and vending robot. It features a large amount of supplementary material, including the standard protocol and sample codes for chassis, sonar, and radar. GPSD protocol/NMEA protocol and GPS deployment methods are also provided. Most importantly, readers will learn the philosophy behind the DragonFly modular-based design approach, which empowers readers to design and build their own autonomous vehicles and robots with flexibility and affordability.

- Offers progressive guidance on building autonomous vehicles and robots
- Provides detailed steps and codes to create an autonomous machine, at affordable cost, and with a modular approach
• Written by one of the pioneers in the field building autonomous vehicles

• Includes case studies, source code, and state-of-the art research results

• Accompanied by a website with supplementary material, including sample code for chassis/sonar/radar; GPS deployment methods; Vision Calibration methods

*Engineering Autonomous Vehicles and Robots* is an excellent book for students, researchers, and practitioners in the field of autonomous vehicles and robots.

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**ABOUT THE AUTHOR**

**SHAOSHAN LIU, P.H.D.**, is Founder and CEO of PerceptIn, a full-stack visual intelligence company aimed at making scalable hardware/software integrated solutions for autonomous robotics systems. Liu holds a Ph.D. in Computer Engineering from University of California, Irvine and his research focuses on Edge Computing Systems, Robotics, and Autonomous Driving. Liu has over 40 publications and over 100 patents in autonomous systems. Liu is currently a Senior Member of IEEE, an ACM Distinguished Speaker, an IEEE Computer Society Distinguished Visitor, and a co-founder of the IEEE Computer Society Special Technical Community on Autonomous Driving Technologies.

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**SERIES**

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