

Algorithm & SoC Design for Automotive Vision Systems

For Smart Safe Driving System

An emerging trend in the automobile industry is its convergence with information technology (IT). Indeed, it has been estimated that almost 90% of new automobile technologies involve IT in some form. *Smart* driving technologies that improve safety as well as *green* fuel technologies are quite representative of the convergence between IT and automobiles. The smart driving technologies include three key elements: sensing of driving environments, detection of objects and potential hazards and the generation of driving control signals including warning signals.

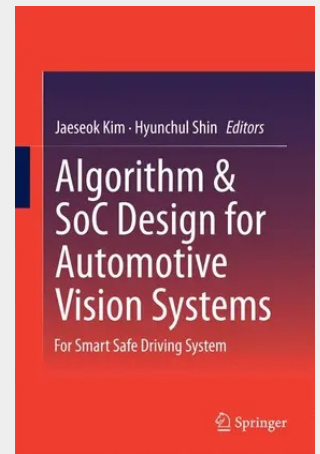
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This book covers system-on-a-chip (SoC) designs—including both algorithms and hardware—related with image sensing and object detection by using the camera for smart driving systems. It introduces a variety of algorithms such as lens correction, super resolution, image enhancement and object detections from the images captured by low-cost vehicle camera. This is followed by implementation issues such as SoC architecture, hardware accelerator, software development environment and reliability techniques for automobile vision systems.

This book is aimed for the new and practicing engineers in automotive and chip-design industries to provide some overall guidelines for the development of automotive vision systems.

It will also help graduate students understand and get started for the research work in this field.

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