3D Face Modeling, Analysis and Recognition
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DESCRIPTION

3D Face Modeling, Analysis and Recognition presents methodologies for analyzing shapes of facial surfaces, develops computational tools for analyzing 3D face data, and illustrates them using state-of-the-art applications. The methodologies chosen are based on efficient representations, metrics, comparisons, and classifications of features that are especially relevant in the context of 3D measurements of human faces. These frameworks have a long-term utility in face analysis, taking into account the anticipated improvements in data collection, data storage, processing speeds, and application scenarios expected as the discipline develops further.

The book covers face acquisition through 3D scanners and 3D face pre-processing, before examining the three main approaches for 3D facial surface analysis and recognition: facial curves; facial surface features; and 3D morphable models. Whilst the focus of these chapters is fundamentals and methodologies, the algorithms provided are tested on facial biometric data, thereby continually showing how the methods can be applied.

Key features:
• Explores the underlying mathematics and will apply these mathematical techniques to 3D face analysis and recognition
• Provides coverage of a wide range of applications including biometrics, forensic applications, facial expression analysis, and model fitting to 2D images
• Contains numerous exercises and algorithms throughout the book

ABOUT THE AUTHOR

Mohamed Daoudi, TELECOM Lille 1, France Professor Daoudi is a member of the computer science department at TELECOM Lille 1, and a member of the IEEE. Prof. Daoudi is an editor of the Journal of Multimedia and has been a guest co-editor of the Annals of Telecommunications for a special issue on Technologies and Tools for 3D Imaging. He co-edited 3D Object Processing: Compression, Indexing and Watermarking published by Wiley in 2008.

Anuj Srivastava, Florida State University, USA Professor Srivastava is a member of the department of statistics at Florida State University, and a member of the IEEE and ASA. He has been an associate editor of the Journal of Statistical Planning and Interference, IEEE Transactions on Signal Processing, and IEEE Transactions on Pattern Analysis and Machine Intelligence, which he also edited a special issue of on Shape Modeling. He has published over 30 journal papers and 7 book chapters in edited volumes.

Remco Veltkamp, Universiteit Utrecht, The Netherlands Professor Veltkamp is a member of the department of Information and Computing Sciences at Utrecht University, focusing on multimedia applications. He is an editor of Pattern Recognition Journal and the International Journal on Shape Modeling. He has also guest edited several journals including a special issue on Multimedia Algorithmics in Multimedia Tools and Applications, and a special issue on Shape Reasoning and Understanding in Computers & Graphics. Prof. Veltkamp has published 30 journal papers, 13 book chapters in edited volumes, co-edited several conference proceedings and has co-edited State-of-the-art in Content-based Image and Video Retrieval published by Springer in 2001.

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