

## Contents

|                                                                                                                                                                                                                                      |    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Preface.....                                                                                                                                                                                                                         | v  |
| List of Contributors.....                                                                                                                                                                                                            | xi |
| Chapter 1: Enhanced Lesion Detection in Breast MRI Using Parallel ..... 1<br>and Cascaded Integration of Deep Learning Models<br><i>Ghazal Rouhafzay, Yonggang Li, Haitao Guan, Chang Shu,<br/>Rafik A.-Goubran and Pengcheng Xi</i> |    |
| Chapter 2: A Survey on Peripheral Blood Smear Analysis Using ..... 23<br>Deep Learning<br><i>Rabiah Alqudah and Ching Y. Suen</i>                                                                                                    |    |
| Chapter 3: End-to-End Generative Adversarial Network for..... 47<br>Hand-Vein Recognition<br><i>Huafeng Qin and Mounim A. El Yacoubi</i>                                                                                             |    |
| Chapter 4: Diabetic Retinopathy Analysis Based on Retinal Fundus ..... 61<br>Photographs via Deep Learning<br><i>Yan Xu, Yufang Tang, Xuezhou Wen and Ching Y. Suen</i>                                                              |    |
| Chapter 5: Pattern Recognition in Handwriting..... 77<br><i>Sheila Lowe</i>                                                                                                                                                          |    |
| Chapter 6: A Deep Reinforcement Learning-based Study on..... 97<br>Handwriting Difficulty Analysis<br><i>Chandranath Adak, Bidyut B. Chaudhuri and Michael Blumenstein</i>                                                           |    |
| Chapter 7: Gender Detection from Handwritten Documents..... 119<br>Using the Concept of Transfer Learning<br><i>Najla AL-Qawasmeh and Ching Y. Suen</i>                                                                              |    |

|                                                                        |     |
|------------------------------------------------------------------------|-----|
| Chapter 8: The Wartegg Test .....                                      | 133 |
| <i>Graziella Pettinati</i>                                             |     |
| Chapter 9: A New Prediction Method for Credit Scoring Based on.....    | 145 |
| Sampling Reconstruction of Signal on Graph                             |     |
| <i>Qian Zhang, Zhihua Yang, Feng Zhou and Lihua Yang</i>               |     |
| Chapter 10: Optimal Choices of Features in Image Analysis .....        | 161 |
| <i>Camille Kurtz and Nicole Vincent</i>                                |     |
| Chapter 11: A Comprehensive Unconstrained, License Plate .....         | 183 |
| Database                                                               |     |
| <i>Nicola Nobile, Hoi Kei Phoebe Chan and Marleah Blom</i>             |     |
| Chapter 12: Classification of Spanish Criminal News using .....        | 193 |
| Neural Networks                                                        |     |
| <i>Mireya Tovar Vidal, Emmanuel Santos Rodriguez and</i>               |     |
| <i>José A. Reyes-Ortiz</i>                                             |     |
| Chapter 13: Predicting US Elections with Social Media and .....        | 213 |
| Neural Networks                                                        |     |
| <i>Ellison Yin Nang Chan, Adam Krzyżak and Ching Y. Suen</i>           |     |
| Chapter 14: Differences and Similarities learning for Unsupervised ... | 231 |
| Feature Selection                                                      |     |
| <i>Tan Jun, Xinyi Li, Ning Bi and You Ning</i>                         |     |
| Index .....                                                            | 259 |