Contents

Forensics

HEVC Double Compression Detection Based on SN-PUPM Feature . . . . . . . 3
  Qianyi Xu, Tanfeng Sun, Xinghao Jiang, and Yi Dong

Towards Automated Forensic Pen Ink Verification by Spectral Analysis . . . 18
  Michael Kalbitz, Tobias Scheidat, Benjamin Yüksel, and Claus Vielhauer

Recaptured Image Forensics Based on Quality Aware
  and Histogram Feature . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 31
  Pengpeng Yang, Ruihan Li, Rongrong Ni, and Yao Zhao

Website Fingerprinting Attack on Psiphon and Its Forensic Analysis . . . . . 42
  Tekachew Gobena Ejeta and Hyoung Joong Kim

Deep Learning Based Counter–Forensic Image Classification
  for Camera Model Identification . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 52
  Venkata Udaya Sameer, Ruchira Naskar, Nikhita Musthyala,
  and Kalyan Kokkalla

Block-Based Convolutional Neural Network for Image Forgery Detection . . 65
  Jianghong Zhou, Jiangqun Ni, and Yuan Rao

A Hybrid Feature Model for Seam Carving Detection . . . . . . . . . . . . . 77
  Jingyu Ye and Yun-Qing Shi

Biometric Image Tampering Detection

Face Morphing Detection: An Approach Based on Image
  Degradation Analysis . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 93
  Tom Neubert

Detection of Face Morphing Attacks by Deep Learning . . . . . . . . . . . . . 107
  Clemens Seibold, Wojciech Samek, Anna Hilsmann, and Peter Eisert

CNNs Under Attack: On the Vulnerability of Deep Neural Networks Based
  Face Recognition to Image Morphing . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 121
  Lukasz Wandzik, Raul Vicente Garcia, Gerald Kaeding, and Xi Chen

Topological Data Analysis for Image Tampering Detection . . . . . . . . . . . . 136
  Aras Asaad and Sabah Jassim
Steganography and Steganalysis

Coding Efficiency Preserving Steganography Based on HEVC
Steganographic Channel Model ........................................... 149
   Yi Dong, Xinghao Jiang, Tanfeng Sun, and Dawen Xu

A Prediction Mode-Based Information Hiding Approach for H.264/AVC
Videos Minimizing the Impacts on Rate-Distortion Optimization .... 163
   Yu Wang, Yun Cao, Xianfeng Zhao, and Linna Zhou

Adaptive Audio Steganography Based on Advanced Audio Coding
and Syndrome-Trellis Coding ............................................. 177
   Weiqi Luo, Yue Zhang, and Haodong Li

Information Hiding Using CAVLC: Misconceptions
and a Detection Strategy .................................................. 187
   Weike You, Yun Cao, and Xianfeng Zhao

Adaptive MP3 Steganography Using Equal Length Entropy
Codes Substitution .......................................................... 202
   Kun Yang, Xiaowei Yi, Xianfeng Zhao, and Linna Zhou

A Steganalysis Scheme for AAC Audio Based on MDCT Difference
Between Intra and Inter Frame .......................................... 217
   Yanzhen Ren, Qiaochu Xiong, and Lina Wang

Emerging Threats of Criminal Use of Information Hiding:
Usage Scenarios and Detection Approaches

A Prediction Model Based Approach to Open Space Steganography
Detection in HTML Webpages ........................................... 235
   Iman Sedeeq, Frans Coenen, and Alexei Lisitsa

Towards Covert Channels in Cloud Environments:
A Study of Implementations in Virtual Networks ...................... 248
   Daniel Spiekermann, Jörg Keller, and Tobias Eggendorfer

Steganalysis Based on Awareness of Selection-Channel
and Deep Learning ......................................................... 263
   Jianhua Yang, Kai Liu, Xiangui Kang, Edward Wong, and Yunqing Shi

Watermarking

Improved Algorithms for Robust Histogram Shape-Based
Image Watermarking ....................................................... 275
   Bingwen Feng, Jian Weng, and Wei Lu
Image Quality Assessment in Reversible Data Hiding with Contrast Enhancement .......................................................... 290
   Hao-Tian Wu, Shaohua Tang, and Yun-Qing Shi

Improved Reversible Visible Watermarking Based on Adaptive Block Partition ......................................................... 303
   Guangyuan Yang, Wenfa Qi, Xiaolong Li, and Zongming Guo

Robust Zero Watermarking for 3D Triangular Mesh Models Based on Spherical Integral Invariants ............................ 318
   Chennchen Cui, Rongrong Ni, and Yao Zhao

On the Statistical Properties of Syndrome Trellis Coding ................................................................. 331
   Olaf Markus Köhler, Cecilia Pasquini, and Rainer Böhme

A Blind Reversible Data Hiding Method for High Dynamic Range Images Taking Advantage of Sparse Histogram .......... 347
   Masaaki Fujiyoshi and Hitoshi Kiya

Other Topics

A Novel Visual Cryptography Scheme with Different Importance of Shadows .......................................................... 365
   Peng Li and Zuquan Liu

A Novel Image Classification Method with CNN-XGBoost Model ................................................................. 378
   Xudie Ren, Haonan Guo, Shenghong Li, Shilin Wang, and Jianhua Li

Improvement and Evaluation of Time-Spread Echo Hiding Technology for Long-Distance Voice Evacuation Systems .......... 391
   Akira Nishimura

Temporal Integration Based Visual Cryptography Scheme and Its Application .......................................................... 406
   Wen Wang, Feng Liu, Teng Guo, and Yawei Ren

Author Index ........................................................................................................................................ 421