

Referências Bibliográficas

- [1] MA, H.; ZARKI, E. **Broadcast/Multicast MPEG-2 Video over Broadband Fixed Wireless Access Networks**. IEEE NETWORK, November-December 1998, p. 80-93.
- [2] JPEG CD10918-1. **Digital Compression of Continuous-Tone Still Images**. JPEG-9-R6, January 1991.
- [3] SCHÄFER, R.; SIKORA, T. **Digital Video Coding Standards and Their Role in Video Communications**. PROC. OF THE IEEE, v. 83, n. 6, June 1995, p. 907-924.
- [4] EBRAHIMI, T.; KUNT, M. **Visual Data Compression for Multimedia Applications**. PROC. OF THE IEEE, v. 86, n. 6, June 1998.
- [5] ISO/IEC JTC1/SC29/WG1 N505. **Call for Contribution for JPEG 2000**, March 1997.
- [6] CHOKCHAITAM, S.; IWAHASHI, M. **Lossless, Near-Lossless and Lossy Adaptive Coding Based on the Lossless DCT**. IEEE, 2002.
- [7] ITU-T REC. H.261 **Video Codec for Audio-Visual Services at 64-1920 kbits/s**, 1993.
- [8] ITU-T REC. H.262 **Generic Coding of Moving Pictures and Associated Audio: Video**. ISO/IEC 13818-2, 1995.
- [9] ALCAIM, A. **Tutorial: Compressão de Vídeo**. Boletim da Sociedade Brasileira de Telecomunicações - SBrT notícias, n. 2, Janeiro e Fevereiro 2000.
- [10] RIJKSE, K. **H.263: Video Coding for Low-Bit-Rate Communication**. IEEE COMMUNICATIONS MAGAZINE, December 1996, p. 42-45.

- [11] ITU-T REC. H.263 **Video Coding for Low-Bit-Rate Communi-
cation**, Version 1, November 1995; Version 2 (H.263+), January 1998;
Version 3 (H.263++), November 2000.
- [12] GIROD, B. **Video Communication - Advances and Applica-
tions**. PROC. OF GLOBAL TELECOMMUNICATIONS CONFE-
RENCE - GLOBECOM'99 - MULTIMEDIA SERVICES AND TE-
CHNOLOGY ISSUES, 1999.
- [13] CHIARIGLIONE, L. **Impact of MPEG Standards on Multimedia
Industry**. PROC. OF THE IEEE, v. 86, n. 6, p. 1222 - 1227, June
1998.
- [14] NETRAVALI, A.; LIPPMAN, A. **Digital Television: A Perspec-
tive**. PROC. OF THE IEEE, v. 83, n. 6, June 1995, p. 834-840.
- [15] GIROD, B. **Why B-Pictures Work: A Theory of Multihypothe-
sis Motion-Compensated Prediction**. PROC. IEEE INTERNA-
TIONAL CONFERENCE ON IMAGE PROCESSING - ICIP'98, Chi-
cago, v. II, p. 213 - 217, October 1998.
- [16] SIKORA, T. **The MPEG-4 Video Standard Verification Mo-
del**. IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR
VIDEO TECHNOLOGY, v. 7, n. 1, February 1997, p. 19-31.
- [17] EBRAHIMI, T. **MPEG-4 Video Verification Model Version
11.0**. ISSO/IEC JTC1/SC29/WG11, MPEG98/N2172, Tokyo, March
1998.
- [18] FUKUNAGA, I. et al. **MPEG-4 Video Verification Model Ver-
sion 12.1**. ISSO/IEC JTC1/SC29/WG11, MPEG98/N2552, Rome,
December 1998.
- [19] **MPEG-4 Applications**. ISO/IEC JTC/SC29/WG11 N2724, Seoul,
March 1999.
- [20] **MPEG-4 Overview**. ISO/IEC JTC1/SC29/WG11 N3156, Maui,
December 1999.
- [21] **Overview of MPEG-4 Standard**. ISO/IEC JTC/SC29/WG11
N4668: MPEG-4 VISUAL, Singapura, March 2002.
- [22] **Coding of audio-visual objects - Part 2: Visual**. ISO/IEC 14496-
2 JTC1/MPEG-4 VISUAL, Version 1, April 1990 and Amendment,
February 2000.

- [23] **Overview of MPEG-4 Standard.** ISO/IEC JTC/SC29/WG11 N4668: MPEG-4 VISUAL, Singapura, March 2002.
- [24] SIKORA, T.; CHIARIGLIONE, L. **MPEG-4 Video and its Potential for Future Multimedia Services**, ISCAS 1997 - IEEE SYMPOSIUM ON CIRCUITS AND SYSTEMS, v. 2, 1997, p. 1468-1471.
- [25] OSTERMANN, J. **Coding of Arbitrally Shaped Objects with Binary and Greyscale Alpha-Maps: What Can MPEG-4 Do For You?**, ISCAS 1998 - IEEE SYMPOSIUM ON CIRCUITS AND SYSTEMS, v. 5, 1998, p. 273-276.
- [26] FLIERL, M.; GIROD, B. **Generalized B Pictures and the Draft H.264/AVC Video-Compression.** IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 13, n. 7, July 2003.
- [27] WEDI, T.; HANS, G. **Motion and Aliasing-Compensated Prediction for Hybrid Video Coding.** IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 13, n. 7, July 2003.
- [28] WIEGAND, T. et al. **Rate-Constrained Coder Control and Comparison of Video Coding Standards.** IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 13, n. 7, July 2003.
- [29] BENZLER, U. **Scalable-Multi Resolution Video Coding Using a Combined Subband-DCT Approach.** PROC. OF 1999 PICTURE CODING SYMPOSIUM - PCS 99, 1999.
- [30] DOMANSKI, M. et al. **Spatio-Temporal Scalability for MPEG Video Coding.** IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 10, n. 7, October 2000, p. 1088-1093.
- [31] CAVALLI, F. et al. **Performance Analysis of MPEG-4 Decoder and Encoder.** PROC. OF VIPROM-COM 2002 - IEEE REGION 8 INTERNATIONAL SYMPOSIUM ON VIDEO / IMAGE AND MULTIMEDIA COMMUNICATIONS, Zadar, Croatia, 2002, p. 227-231.
- [32] SCHÄFER, R. et al. **The Emerging H.264/AVC Standard.** EBU TECHNICAL REVIEW, January 2003.

- [33] WIEGAND, T. **Joint Final Comitee Draft.** DOC. JVT-E146D37NCM, JOINT VIDEO TEAM (JVT) OF ISO/IEC MPEG & ITU-T VCEG (ISO/IEC JTC1/SC29/WG11 AND ITU-T SG16 Q.6), November 2002.
- [34] WIEGAND, T. et al. **Overview of the H.264/AVC Video Coding Standard.** IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 13, n. 7, July 2003, p. 560-576.
- [35] FLIERL, M.; GIROD, B. **Generalized B Pictures and Draft H.264/AVC Video-Compression Standard.** IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 13, n. 7, July 2003, p. 587-597.
- [36] MALVAR, H. et al. **Low-Complexity Transform and Quantization in H.264/AVC.** IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 13, n. 7, July 2003, p. 598-603.
- [37] WIEN, M. **Variable Block-Size Transforms for H.264/AVC.** IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 13, n. 7, July 2003, p. 604-613.
- [38] LIST, P. et al **Adaptive Deblocking Filter.** IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 13, n. 7, July 2003, p. 614-619.
- [39] RAVASI, M. et al. **A Computational Complexity Comparison of MPEG-4 and JVT Codecs.** DOC. JVT-D153R1-L, JOINT VIDEO TEAM (JVT) OF ISO/IEC MPEG & ITU-T VCEG (ISO/IEC JTC1/SC29/WG11 AND ITU-T SG16 Q.6), Klagenfurt, Austria, July, 2002.
- [40] KALVA, H. **Issues in H.264/MPEG-2 Video Transcoding.** PROC. OF THE FIRST IEEE CONSUMER COMMUNICATIONS AND NETWORKING CONFERENCE - CCNC 2004, January 2004, p. 657-659.
- [41] MIGNOT, A.; GARNEAU, P. **MPEG-4 Toward Solid Representation.** IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 14, n. 7, July 2004, p. 967-974.

- [42] NGAN, K.N. et al. **Special Issue on Representation and Coding of Images and Video II** IEEE TRANSACTIONS ON CIRCUIT AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 9, n. 1, February 1999, p. 1-4.
- [43] **MPEG-4 Video Verification Model Version 16.0.** ISO/IEC JTC1/SC29/WG11 N3312, Noordwijkerhout, March 2000.
- [44] ACOCELLA, E.C. **Abordagens Matemáticas e Experimentais em Codificação de Vídeo Adaptativa à Forma.** TESE DE DOUTORADO. Departamento de Engenharia Elétrica - CETUC/PUC Rio, abril, 2000.
- [45] KATSAGGELOS, A.K. **MPEG-4 and Rate-Distortion-Based Shape-Coding Techniques.** PROC. OF THE IEEE, v. 89, n. 6, June 1998, p. 1126-1154.
- [46] WANG, D.; LABIT, C. **Morphological Spatio-Temporal Simplification for Video Image Segmentation.** SIGNAL PROCESSING: IMAGE COMMUNICATION, 11, 1997, p. 161-169.
- [47] PARDAS, M.; SALEMBIER, P. **3D Morphological Segmentation and Motion Estimation for Image Sequences.** SIGNAL PROCESSING, 38, 1994, p. 31-43.
- [48] , CRISTOPOLOUS, A. et al. **Segmented Image Coding: Techniques and Experimental Results.** SIGNAL PROCESSING: IMAGE COMMUNICATION, 11, 1997, 63-80.
- [49] LIE, W.N. **An Efficient Threshold-Evaluation Algorithm for Image Segmentation Based on Spatiaal Graylevel Co-Occurences.** SIGNAL PROCESSING, v. 33, 1993, p. 121-126.
- [50] LUCCHESI, L.; MITRA, S.K. **Advances in Color Segmentation.** PROC. OF GLOBAL TELECOMMUNICATIONS CONFERENCE 1999 - GLOBECOM'99.
- [51] WONG, F. et al. **An Image Segmentation Method Using Fuzzy-Based Threshold.** PROC. OF THE SIXTH INTERNATIONAL SYMPOSIUM ON SIGNAL PROCESSING AND ITS APPLICATION, v. 1, August 2001.
- [52] BAKALEXIS, S.A. et al **Edge Detection and Image Segmentation Based on Nonlinear Anisotropic Diffusion.** PROC. OF

THE 14TH INTERNATIONAL CONFERENCE ON DIGITAL SIGNAL PROCESSING , v.2, July 2002.

- [53] KUMAR, A.; GRUPTA, S. **A Novel Probabilistic Approach for Real Time Motion Segmentation and Tracking**. PROC. OF THE SIXTH INTERNATIONAL SYMPOSIUM ON SIGNAL PROCESSING AND ITS APPLICATION, v. 1, August 2001.
- [54] ZHANG, Y.J. **A Review of Recent Evaluation Methods for Image Segmentation**. PROC. OF THE SIXTH INTERNATIONAL SYMPOSIUM ON SIGNAL PROCESSING AND ITS APPLICATION, v. 1, August 2001.
- [55] HWANG, S.W. et al. **Automatic Object Segmentation for Content-Based Video Coding**. PROC. OF THE ICCE - INTERNATIONAL CONFERENCE ON CONSUMER ELECTRONICS, June 2001. p. 150-151.
- [56] BABU, R.V. et al. **Video Object Segmentation: A Compressed Domains Approach**. IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 14, n. 4, April 2004, p. 462-474.
- [57] XU, H. et al. **Automatic Moving Object Extraction for Content-Based Applications**. IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 14, n. 6, June 2004, p. 796-812.
- [58] KATATA, H.; HO, N. **Temporal-Scalable Coding Based on Image Content**. IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 7, n. 1, February 1997, p. 52-59.
- [59] KONDI, L. et al. **Joint Optimal Object Shape Estimation and Encoding**. IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 14, n. 4, April 2004, p. 528-533.
- [60] KAUFF, P. et al. **Functional Coding of Video Using a Shape-Adaptive DCT Algorithm and an Object-Based Motion Prediction Toolbox**. IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 7, n. 1, February 1997, p. 181-194.

- [61] FRANÇOIS, E. et al. **Coding Algorithm with Region-Based Motion Compensation.** IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 7, n. 1, February 1997, p. 97-108.
- [62] OLIVEIRA, G.C.; ALCAIM, A. **On Fast Motion Compensation Algorithms for Video Coding.** PROC. OF 1997 PICTURE CODING SYMPOSIUM - PCS 97, Berlim, Alemanha, 1997.
- [63] OLIVEIRA, G.C.; ALCAIM, A. **Performance of Motion Estimators Over MPEG Coder Considering Frame Delay Analysis.** PROC. OF GLOBAL TELECOMMUNICATIONS CONFERENCE - GLOBECOM'98, Sidney, Australia, 1998.
- [64] BESSON, S.J. et al. **An Object-Based Motion Method for Video Coding.** PROC. OF 2001 INTERNATIONAL CONFERENCE ON IMAGE PROCESSING - ICIP 2001, v. 3, October 2001, p. 502-505.
- [65] ZACCARIN, A.; YEO, B.L. **Multi-Rate Encoding of a Video Sequence in the DCT Domain.** PROC. OF ISCAS 2002 - INTERNATIONAL SYMPOSIUM ON CIRCUIT AND SYSTEMS, v. 2, May 2002, p. II-680 to II-683.
- [66] GILGE, M.; ENGELHARDT, T.; MEHLAN, R. **Coding of Arbitrarily Shaped Image Segments Based on a Generalized Orthogonal Transform.** SIGNAL PROCESSING: IMAGE COMMUNICATION, v. 1, n. 2, October 1989, p. 153-180.
- [67] SIKORA, T.; MAKAI, B. **Shape-Adaptive DCT for Generic Coding of Video.** IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 5, n. 1, February 1995, p. 59-62.
- [68] SIKORA, T. et al. **Efficiency of Shape-Adaptive 2-D Transforms for Coding of Arbitrarily Shaped Image Segments** IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 5, n. 3, June 1995, p. 254-258.
- [69] BI, M. et al. **Comment on Shape-Adaptive DCT for Generic Coding of Video.** IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 6, n. 6, December 1996, p. 686-688.

- [70] KAUFF P.; SCHURR, K. **An Extension of Shape-Adaptive DCT (SA-DCT) Towards DC Separation And DDC Correction.** PCS'97, Berlim, 1997, p. 647-652.
- [71] MOON, J.H. et al. **Boundary Block-Merging (BBM) Technique for Efficient Texture Coding of Arbitrally Shaped Object.** IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 9, n. 1, February 1999.
- [72] NG, W.K.; LIN, Z. **A New Shape-Adaptive DCT for Coding of Arbitrally Shaped Image Segments.** 2000 IEEE, 2000, p. 2115-2118.
- [73] SHEN,; ZENG, G. B.; LIOU, M.L. **An Efficient Hybrid Arbitrarily-Shaped Object Coding Technique.** ISCAS 2000 - IEEE SYMPOSIUM ON CIRCUITS AND SYSTEMS. Geneva, Switzerland, May 2000, p. II-5 to II-8.
- [74] ACOCELLA, E. C.; ALCAIM, A. **Alignment by Phase of Vertical Coefficients in SA-DCT.** IEEE SIGNAL PROCESSING LETTERS, v. 8, n. 12, February 2001, p. 42-44.
- [75] ACOCELLA, E. C.; ALCAIM, A. **Mathematical Formulation of Shape-Adaptive 2-D Transforms.** IEEE SIGNAL PROCESSING LETTERS, v. 8, n. 10, October 2001, p. 273-275.
- [76] MOON, J. H. et al. **Shape-Adaptive Region Partitioning Method for Shape-Assisted Block-Based Texture Coding.** IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 7, n. 1, February 1997, p. 240-246.
- [77] SHEN,; ZENG, G. B.; LIOU, M.L. **Achieving Optimal Rate-Distortion Performance in Arbitrarily-Shaped Transform Coding.** ISCAS 2000 - IEEE SYMPOSIUM ON CIRCUITS AND SYSTEMS. Geneva, Switzerland, May 2000, p. II-1 to II-4.
- [78] CHO, S. J. et al. **Arbitrarily-Shaped Image Segment Coding Using Extension-Interpolation.** J. KOREAN INSTITUTE OF COMMUNICATION SCIENCE 20 (9), 1995, p. 2453-2463.
- [79] XIE, T. et al. **A New Approach to Arbitrary Shaped DCT.** PCS'1997, Berlim, 1997.

- [80] YI, J. W. et al. **A New Coding Algorithm for Arbitrarily Shaped Image Segments**. SIGNAL PROCESSING IMAGE COMMUNICATION, v. 12, 1998, p. 231-242.
- [81] SHEN, G.; ZENG, B.; LIOU, M.L. **A New Padding Technique for Coding of Arbitrarily-Shaped Image/Video Segments**. 1999 IEEE INTERNATIONAL CONFERENCE ON IMAGE PROCESSING (ICIP'99), Kobe, Japan, October 1999.
- [82] KAUP, A. **Object-Based Texture Coding of Moving Video in MPEG-4**. IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 9, n. 1, February, 1999.
- [83] LUO, Y.; WARD, R.W. **Removing the Blocking Artifacts of Block-Based DCT Compressed Images**. IEEE TRANSACTIONS ON IMAGE PROCESSING, v. 12, n. 7, July 2003, p. 838-842.
- [84] KATATA, H. et al. **Object Wavelet Transform for Coding of Arbitrarily Shaped Image Segments**. IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 7, n. 1, February 1997, p.234-237.
- [85] LI, J.; LEI, S. **Arbitrary shape wavelet transform with phase alignment**. PROC. OF 1998 IEEE CONFERENCE ON IMAGE PROCESSING, v. 3, Chicago, October 1998, p. 683-687.
- [86] CHEN, P.; WOODS, J.W. **Region-Based Subband/Wavelet Image Coding**. , 2000, p. 202-205.
- [87] XING, G. et al. **Arbitrarily Shaped Video-Object Coding by Wavelet**. IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 11, n. 10, October 2001, p. 1135-1139.
- [88] SOUZA, M.A.; ACOCELLA, E.C.; ALCAIM, A. **Subband Decomposition Strategies for Object-Based Image Coding**. INTERNATIONAL JOURNAL ON IMAGING SYSTEMAS AND TECHNOLOGY, v. 13, 2003, p. 179-187.
- [89] PARK, K.; PARK, H.W. **Region-of-Interest Coding Based on Set Partitioning in Hierarchical Trees**. IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 12, n. 2, February 2002, p. 106-113.

- [90] JAYANT, N.S.; NOLL, P. **Digital Coding of Waveforms**. PRENTICE-HALL, 1984.
- [91] SAPHIRO, J. M. **Embedded Image Coding Using Zerotrees of Wavelet Coefficients**. IEEE TRANSACTIONS ON SIGNAL PROCESSING, v. 41, n. 12, December 1993.
- [92] SAID, A.; PEARLMAN, W. A. **A Nex, Fast, and Efficient Image Codec Based on Set Partitioning in Hierarchical Trees**. IEEE TRANSACTIONS ON CIRCUIT AND SYSTEMS FOR VIDEO TECHNOLOGY, v. 6, n. 3, June 1996.
- [93] XIONG, Z. et al. **A DCT-Based Embedded Image Coder**. IEEE SIGNAL PROCESSING LETTERS, v. 2, n. 11, November 1996.

Artigos Resultados de Contribuições desta tese:

- [94] FREITAS, F. M.; ALCAIM, A. **Análise de Métodos de Partição em Blocos em Codificação de Vídeo Baseada em Objeto**. ANAIS DO SIMPÓSIO BRASILEIRO DE TELECOMUNICAÇÕES - SBT 2001, Fortaleza, setembro 2001.
- [95] FREITAS, F.M.; ALCAIM, A. **Performance of the SA-DCT and Block-Based DCT Algorithms for Content-Based Video Coding in Terms of Morphological Features**. PROC. 2ND INTERNATIONAL SYMPOSIUM ON COMMUNICATIONS AND INFORMATION TECHNOLOGY. Pattaya, Thailand, October 2002.
- [96] FREITAS, F.M.; ALCAIM, A. **Escolha da Direção Preferencial de Processamento do Algoritmo de Extrapolação EI para Codificação de Imagens Baseada em Objeto**. ANAIS DO SIMPÓSIO BRASILEIRO DE TELECOMUNICAÇÕES - SBT 2004, Belém, setembro 2004.
- [97] FREITAS, F.M.; ALCAIM, A. **An Hybrid Algorithm for Choosing the Priority of Processing for the Extension-Interpolation Padding Technique on Object-Based Image Coding**. Submetido para publicação.

A

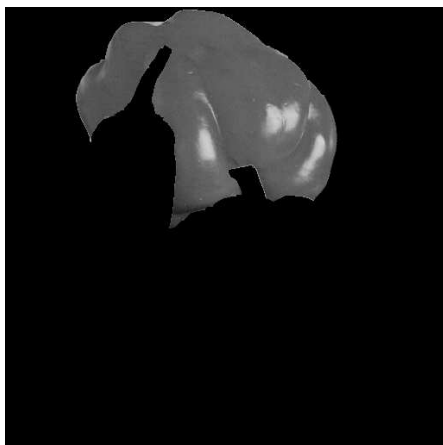
Imagens Empregadas nos Experimentos

A.1

LENA



A.2 PEPPERS



A.3 FIGHTER



A.4 AKYIO



A.5 CHILDREN



quadro 1



quadro 2



quadro 3



quadro 4



quadro 5



quadro 6



quadro 7



quadro 8



quadro 9



quadro 10



quadro 11

A.5.1 Objeto 1



quadro 1



quadro 2



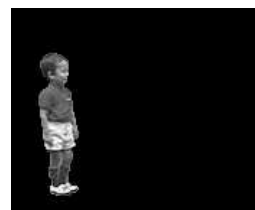
quadro 3



quadro 4



quadro 5



quadro 6



quadro 7



quadro 8



quadro 9



quadro 10



quadro 11

A.5.2 Objeto 2



quadro 1



quadro 2



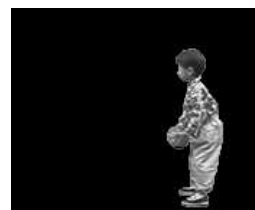
quadro 3



quadro 4



quadro 5



quadro 6



quadro 7



quadro 8



quadro 9



quadro 10



quadro 11

A.6 FISH AND LOGO



quadro 10



quadro 11



quadro 12



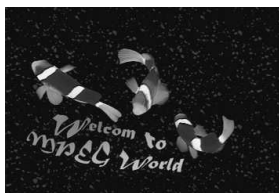
quadro 13



quadro 14



quadro 15



quadro 16



quadro 17



quadro 18

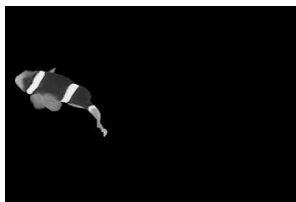


quadro 19

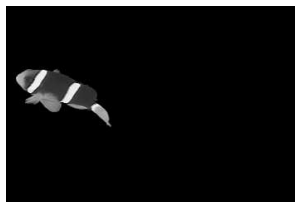


quadro 20

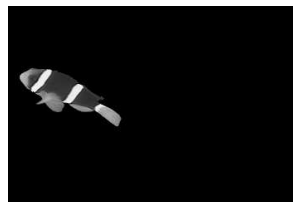
A.6.1 Objeto 1



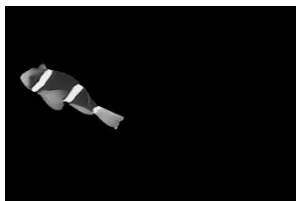
quadro 10



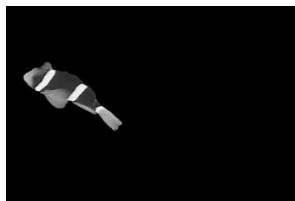
quadro 11



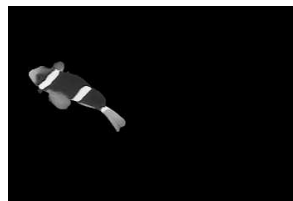
quadro 12



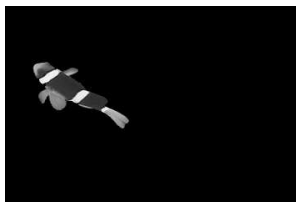
quadro 13



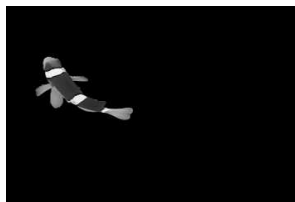
quadro 14



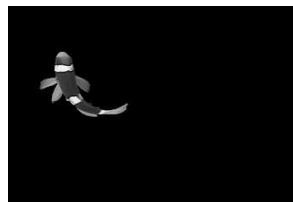
quadro 15



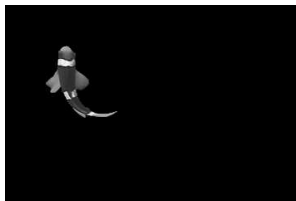
quadro 16



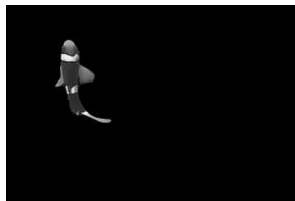
quadro 17



quadro 18



quadro 19



quadro 20

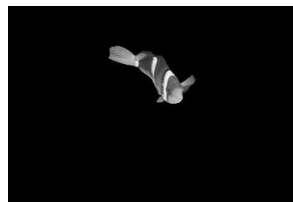
A.6.2 Objeto 2



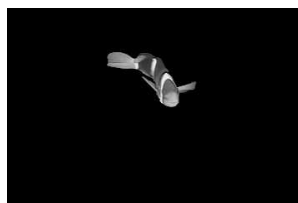
quadro 10



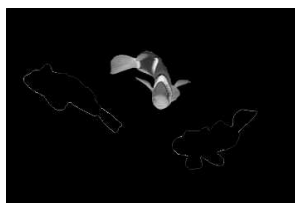
quadro 11



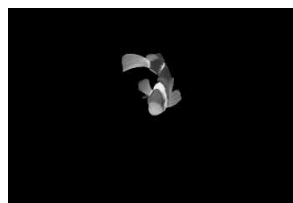
quadro 12



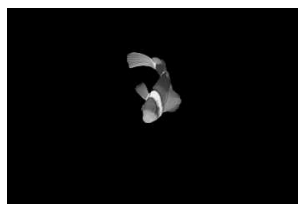
quadro 13



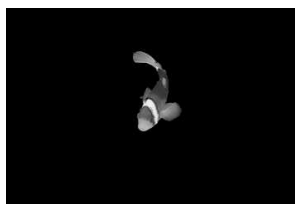
quadro 14



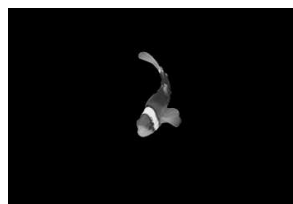
quadro 15



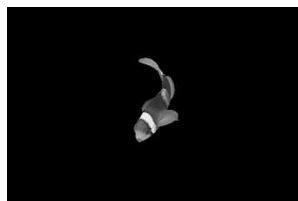
quadro 16



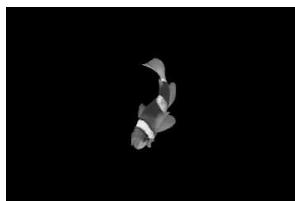
quadro 17



quadro 18

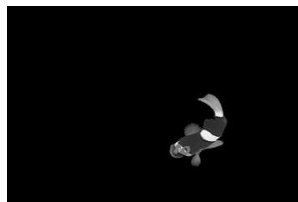


quadro 19

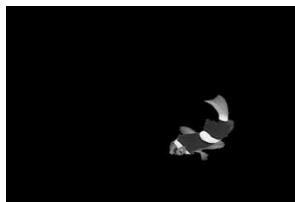


quadro 20

A.6.3 Objeto 3



quadro 10



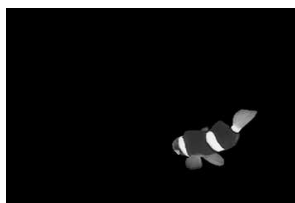
quadro 11



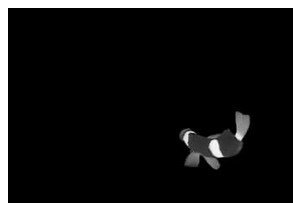
quadro 12



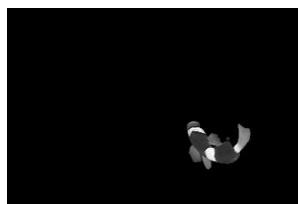
quadro 13



quadro 14



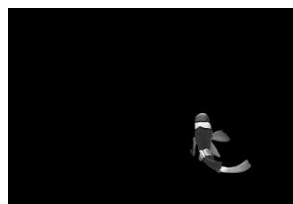
quadro 15



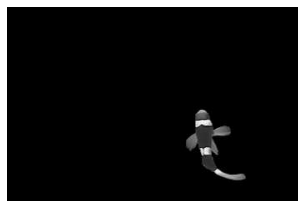
quadro 16



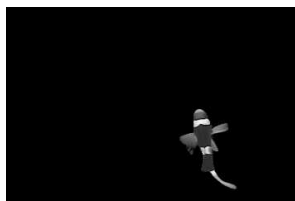
quadro 17



quadro 18



quadro 19



quadro 20

A.7 WEATHER



quadro 1



quadro 2



quadro 3



quadro 4



quadro 5



quadro 6



quadro 7



quadro 8



quadro 9



quadro 10



quadro 11

A.7.1 Objeto



quadro 1



quadro 2



quadro 3



quadro 4



quadro 5



quadro 6



quadro 7



quadro 8



quadro 9



quadro 10



quadro 11