

Image Processing & Coding

Spring Semester 2006

H O M E W O R K

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| HW # 1 | | Prove all 2-D FT properties (one-way) in Table 2.2, pg. 16 Text |
| HW. # 2 | 2.2 a,c,f 2.3 b,e 2.4 a,b 2.5 a(i), a(ii), b(read-only) | discrete convolution properties continuous convolution properties system properties FIR filtering convolution effect |
| HW # 3A(<i>Read Only</i>) | 2.6 2.7 2.8 2.11 | 2-D continuous convolution theorem 2-D Fourier transform of 2-D sequences 2-D Fourier transform properties 2-D z-Transforms |
| HW # 3B. | 2.12 2.13 2.19 | 2-D z-Transform, Frequency response 2-D impulse response Covariance matrix properties |
| HW 4 | Combined with Lab 4 | |
| HW # 5. | 5.3 5.4 5.5 5.6 5.7 5.8 | 2-D basis images Rotation transformation Properties of unitary transformations Entropy and unitary transformations (read only) Decorrelation and energy packing 2-D energy conservation |

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| HW # 6. | 5.14 5.23 5.24(a), 5.24(b) 5.25 (a) 5.27 | Cosine transform and orthogonality Karhunen-Loeve transform and autocorrelation matrices KL transform of given signal DFT, DCT only KL, DFT, Cosine only Min. Entropy property of KL transform |
| HW # 7 | | Homework on Random process assigned. |
| HW #8 | | Homework on causal Wiener filter assigned. |
| HW # 9. | 6.2 | 1-D scans and AR model fit |