ECSE 4540: Introduction to Image Processing **Fall 2019**

Lecture 9: Unitary Image Transform

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It covers: General image transforms, motivation change of basis as a linear transform, 2D FT as matrix multiplication, the spatial basis, the Fourier basis, Matlab example of projections onto spatial vs Fourier bases, unitary transforms preserve energy, 2D FT pros and cons, the discrete cosine transform(DCT), preview of JPEG, the discrete sine transform, the Hadamard transform, the Haar transform, wavelet transform.

References

[GW18] Gonzalez and Woods, Digital Image Processing, *Pearson*, 2018.