

SSIM-Optimization-based Phase Retrieval Method for Optical Imaging

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Phase retrieval is an important issue in the field of engineering physics, studying how to estimate a signal from its Fourier transform magnitude. Iterative projection algorithms are generally used in phase retrieval, which being a substitute of lenses, numerically rather than optically, to recombine light scattered by illuminated objects. In order to optimize iterative phase retrieval method, phase retrieval for optical imaging based on structural similarity(SSIM) algorithm optimization is proposed. SSIM is used to evaluate each iterative results of phase retrieval and obtain the termination conditions of the iterative process. Experiments show that the proposed method lead to less iteration number and higher reconstruction fidelity, it also provides a general solution for imaging with phase retrieval.

Biography

Rui Jiao was born in Yunnan, China. She received the B.S degree in electronic science and technology from Xidian University,Xi'an, China, in 2018. She is currently working toward the Master degree in State Key Laboratory of Advanced Optical Communication Systems and Networks, Shanghai Jiao Tong University, China.

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