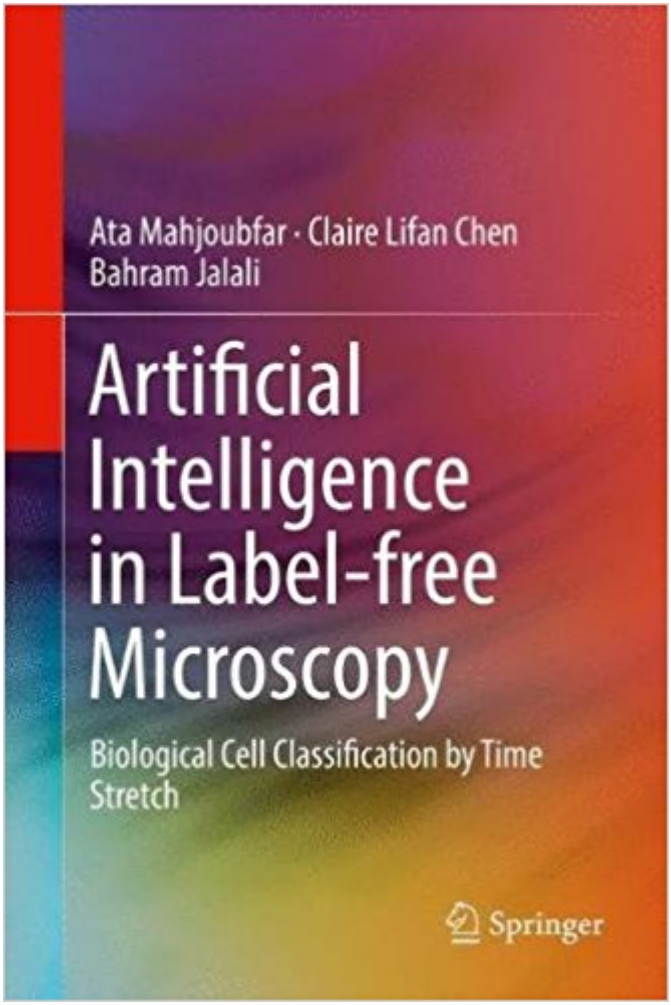
Artificial Intelligence In Label-free Microscopy: Biological Cell Classification By Time Stretch



Synopsis

This book introduces time-stretch quantitative phase imaging (TS-QPI), a high-throughput label-free imaging flow cytometer developed for big data acquisition and analysis in phenotypic screening. TS-QPI is able to capture quantitative optical phase and intensity images simultaneously, enabling high-content cell analysis, cancer diagnostics, personalized genomics, and drug development. The authors also demonstrate a complete machine learning pipeline that performs optical phase measurement, image processing, feature extraction, and classification, enabling high-throughput quantitative imaging that achieves record high accuracy in label -free cellular phenotypic screening and opens up a new path to data-driven diagnosis.

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used in high-speed microscopy imaging to facilitate medical diagnosis;Ã¢â ¬Â¢ Provides a systematic and comprehensive illustration of time stretch technology;Ã¢â ¬Â¢ Enables multidisciplinary application, including industrial, biomedical, and artificial intelligence.

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2001 for his entrepreneurial accomplishments and contributions to Southern California economy.

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