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Nota di contenuto	Summary and Rationale -- Spectral Imaging Systems and Sensor Characterisations -- Wide-field fHSI with a Linescan SRDA -- A Multispectral Endoscope Based on SRDAs -- Conclusions and Outlook.
Sommario/riassunto	This book describes the design, development, characterisation and application of two novel fluorescence imaging instruments based on spectrally resolved detector arrays (SRDAs). The simplest SRDA is the standard colour camera, which integrates a Bayer filter array of red, green and blue colour filters to replicate the colour sensing capability of the human eye. The SRDAs used in this book contain many more colours, ranging from 16 to over 100 colour channels. Using these compact, robust and low-cost detectors for biomedical applications opens new avenues of exploration that were not possible before, in particular, the use of spectral imaging in endoscopy. The work presented shows for the first time that not only can this new type of

camera be used for fluorescence imaging, but also that it is able to resolve signals from up to 7 different dyes – a level of multiplexing not previously achieved in tissue with such compact and robust equipment. Furthermore, it reports the application of a bimodal endoscope performing both reflectance and fluorescence imaging using these cameras in an ex vivo pig oesophagus model. This is the first book to demonstrate the potential of SRDAs for fluorescence imaging in biomedicine, opening up a new multidisciplinary research direction.