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Processing techniques for confocal eye measurements

Lein Applied Diagnostics is a research company developing novel optical technologies for applications in eye diagnostics, biometry and glucose monitoring. Lein's technology is based on confocal optics. This approach allows measurements to be made with high precision in any part of the anterior chamber in the human eye. To date, the majority of the company's efforts have been in refining the optical and electronic systems to improve performance. Recently the focus has shifted, concentrating more on data analysis using advanced signal processing techniques. Through the use of various signal processing methods, shape studies, and statistical models, it is possible to derive more information from the confocal signal. This requires a deep understanding in several complicated domains, such as human biology, confocal optical systems and their interaction with the eye. The characterization and modelling of such a complex system presents a significant challenge.