This proposal is intended to commercialize a machine learning system developed for performing automated diagnosis of an ophthalmic disease, retinopathy of prematurity (ROP), using retinal images. This technology will improve the quality and accessibility of ROP care for premature infants in the United States and throughout the world. This has resulted from research projects that have been continuously funded at OHSU by NIH and NSF since 2010. ROP is a leading cause of childhood blindness worldwide, and has enormous clinical and public health impact in the United States as well as the developing world. Although blindness from ROP is largely preventable with accurate diagnosis and timely treatment, clinical diagnosis is heavily subjective and variable.

Development of an objective and quantitative method for disease detection could change the paradigm for the diagnosis and management of ROP. The PI is an international expert in ROP, telemedicine, and ophthalmic informatics, and is overall PI of a research consortium with collaborators from computer science and ophthalmology who have developed the "i-ROP DL" system which has been rigorously validated in peer-reviewed literature.