**BUDGET JUSTIFICATION**

**Prof. Anat Levin**

**Part A. Senior/Key Personnel**

Key Personnel

Anat Levin, Ph.D., Principal Investigator (1.2 calendar months, 10% effort). Prof. Levin has 25 years of experience in computer vision, machine learning and optics. Her lab has expertise in advanced computational imaging systems and algorithms, in particular in wavefront shaping. Prof. Levin’s lab will be in charge of the optical setup for wavefront shaping, as well as of the development of advanced algorithms for improving its performance. Prof. Levin will oversee the day to- day operation of personnel, provide timely updates on progress and be responsible for all research communication that is expected from the proposed studies.

**Part B. Other Personnel**

*Graduate Students*:

PhD student Mr. Dror Aizik (100% effort) will be responsible for building the first wavefront shaping prototype using single photon excitation outlined in Aim 2, testing it on ex-vivo slices and supporting the Adesnik lab when testing it in-vivo. In later stages of the project he will work on further accelerating the wavefront shaping estimation process and improving its robustness.

PhD student 2-3, probably Itai Ossiroff and Chana Zilbershtein (may adjust names) (100% effort). Will work on machine learning approaches that can improve the noise robustness of the algorithm and extend its depth of field.

*Lab manager*:

Marina Alterman, PhD., Lab coordinator and manager (50% effort). Dr. Alterman has 15 years of expertise in computational imaging and optics, and has been with Prof. Levin since 2017. She will help in the development of the optical setup and its experimental testing. She will also oversee the day to day operation of the lab, train the student and oversee supplies and reagents to the lab on regular basis.

**Part D. Travel**

One trip to an international meeting for Prof. Levin and a PhD student.

We also plan to use the travel budget for travel between the Technion and Berkeley. To support the collaboration, Technion students will travel to Berkely to help utilizing their system in the Adesnik lab.

**Part F. Other Direct Costs**

1. *Materials and Supplies*:

Will be used for many optical components needed for building the wavefront shaping setup. This includes fast spatial light modulators, a camera with high quantum efficiency and low read noise, fast galvo mirrors, objectives, accurate motion stages as well as a variety of other opto-mechanical equipment.

1. *Publication Costs*

$5,000 a year is requested for Open Access publications in widely known journals.

1. Facility/User Fees (Laboratory / Technical Services)

Refer to the usage of machine shop, microscopy unit facilities and clean room facilities, as well as the cost of utilizing existing equipment and Technion facilities allocated to our own lab.

**Part H. Indirect costs**

MTDC rate of 8%.