Possible Project 3

The aim is to explore how the online algorithms work for phase retrieval.

- Understand the background of phase retrieval. For general reference, you may read "Phase Retrieval: An Overview of Recent Developments"; a more related paper could be "The nonsmooth landscape of phase retrieval".

- Make a survey of the formulations mentioned in the paper "The nonsmooth landscape of phase retrieval".

- The bonus part is to prove the convergence of the SGD algorithm applied to some suitable formulations of the phase retrieval problem. Extend this to online algorithms (refer to the online PCA problem). For the proof of the convergence for stochastic algorithm, you may borrow some techniques from the paper "Near optimal stochastic approximation for online principal component estimation"