Metamaterials are artificially structured materials that can exhibit exotic optical properties such as high frequency magnetism and a negative index of refraction. The structure of the metamaterial unit cell dictates its response and while there are guiding principles for design these principles are insufficient when functionality becomes more complex. The purpose of this summer research experience is to investigate different machine learning (ML) algorithms and techniques and implement one of them for metamaterial design. The student’s ML code will be benchmarked against traditional design techniques to determine the efficacy of their approach. If time permits, the student will have a chance to use their code to design metamaterials functions that cannot be achieved using traditional design techniques.