Regeneration of a functional nervous system has been a theme throughout my training. This interest was borne of my undergraduate studies in Howard Howland's laboratory on visual development at Cornell University. My first project examined plasticity of stereopsis past the dogmatic critical period of visual development. This experience inspired a year of postbaccalaureate training in Heather Cameron's laboratory at the National Institute of Mental Health where I first learned molecular techniques, behavioral testing, and animal model approaches to studying functional consequences of eradicating unusual, adult-born neurons in the hippocampus. While in graduate school I pursued the topic of neural plasticity through diverse research contexts. I trained on molecular and histological techniques to test the role of the neurogenic niche within Krabbe disease (Ernesto Bongarzone lab, UIC) as well as molecular genetics methods to examine the spatial and temporal regulators of neural development through the C. elegans animal model (Chieh Chang lab, UIC). However, my doctoral laboratory experience cemented my desire to devote my career to the topic of neural plasticity within ophthalmology. I completed a dissertation project in Mark Rosenblatt's laboratory at UIC that utilized in vivo electrophysiology of the trigeminal ganglion to assess corneal neuronal damage from a common ophthalmic preservative and characterized the alterations in neuronal properties after regenerating from injury that correlate with dry eye symptoms.

As I reach the final stage of my training, I have decided to pursue vitreoretinal surgical fellowship. I see the career of a vitreoretinal specialist as providing the broadest expertise and an expansive toolkit to promote neuroplasticity in retinal disease. I am intrigued by the resilience of retinal tissue in patients who withstand decades of diabetic retinopathy changes or recover meaningful visual function after macula-involving retinal detachments. In keeping with the unifying theme of neural plasticity throughout my research training, it is my career goal to explore the neuroprotective and neuroplastic mechanisms that can preserve retinal function despite chronic or acute insults and to translate these mechanisms into therapeutic interventions for my patients.