

Tadafumi Clark Ikezu
218 Ayshire Farm Lane, Apartment 301B
Stanford, CA 94305
339-223-2153
tcikezu@stanford.edu

Dear Mr. and Mrs. MacDonald,

My name is Clark, and I am a first-year PhD candidate in the Department of Bioengineering. It is thanks to the Robert F. MacDonald Fellowship that I am fully funded this year and able to rotate throughout laboratories in the bioengineering (and other related) departments. The rotation process is formative, for within our first three quarters we choose what principal investigator, which laboratory and what scientific questions we would like to answer for the next five, potentially six years. Thus, I am extremely grateful to you both for providing me the means to pursue my research interests at this world-renowned institution.



Previously, I studied at Boston University where I obtained my bachelor of science in biomedical engineering. During my undergraduate years, I found that the scientific questions which interested me the most all had to do with understanding the structure of complex networks. Complicated structures exist at all scales: a eukaryotic cell is on the order of micrometers in size, but within it a complex network of genetic regulatory elements control the time at which the cell must divide, and the rapidity with which the cell responds to a chemical signal. At larger scales, such cells organize to perform the synchronous beating of the heart, and the blood-filtration in our kidneys. At still larger scales, the specialized roles that we fulfill in a society allow us to create human networks in which cities arise naturally because each specialization depends on one another, and on their proximity and purpose.

Part of the reason why I came to Stanford was because of the wonderful community of bioengineers who are not only interested in complex networks, but who are also actively building these networks, whether it be out of DNA or communities of bacteria. This is exactly what I set out to do during my first quarter rotation, and I made it my goal to build a novel, light-based interaction between cells. The benefit of light is that it is orthogonal to chemically-mediated interactions, and is tunable by the wavelength of light transmitted between cells. I hope to eventually study the physics of this particular mode of communication, and to optimize the interaction so that it can have a useful application.

My acceptance into Stanford's bioengineering PhD program is among the proudest moments of my life. For my parents, it was a validation of their efforts in supporting me throughout the years and giving me every opportunity to learn new things. To be here is an honor, and I appreciate the financial assistance that helped make this possible. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "Tadafumi Clark Ikezu".

Tadafumi Clark Ikezu