To Whom It May Concern:

I hope this letter finds you well. I am writing because I am interested in the DE Shaw Research’s summer intern program (DESRES) under the tag of “Early-Career Scientists and Engineers.” I am currently an undergraduate at the University of California, Berkeley studying Electrical Engineering & Computer Science [EECS] with an anticipated graduation date of May ’17.

In particular, as to why I hope to collaborate and work with research scientists at DESRES stems from my innate desire to learn more, which more often than not, isn’t done in industry for software engineering. I believe that one must be passionate and enthusiastic about one’s work in order to have fulfillment.

Insofar as my qualifications go, I am interested in the groups’ emphasis on computational biology. To my understanding it is about molecular dynamics which is not a bijective correlation with my research, but still similar in the discovery and implementation of various mathematical techniques. Currently my research is on “Kallisto” and previously on “Sleuth.” Kallisto is based on the novel idea of pseudoalignment for rapidly determining the compatibility of reads with targets, without the need for alignment, whereas Sleuth is a real time exploratory analysis program that interprets such data through various statistical algorithms (Principal Component Analysis [PCA] etc.). Currently I am working on optimizing Kallisto’s statistical likelihood model under the guidance of Vasilis Ntranos. The current idea is to improve on Kallisto’s previous assumption of a uniform distribution of RNA-transcript reads by determining the non-uniform distribution of reads to create a more accurate projection onto lower dimensional subspaces.

I hope to be able to apply the research skills gained here to future explore other facets of computational biology.

Thank you for your time and consideration for my candidacy.

Sincerely,

Daniel Li

Electrical Engineering & Computer Science ‘17

University of California, Berkeley