November 7, 2018

Dear Members of the Search Committee,

I am writing to apply for the position of Assistant Professor in the Department of Statistics at the University of California, Berkeley. I completed my bachelor’s degree in mathematics at Princeton University in the spring of 2014 and am now a PhD student in the department of statistics at Stanford University. My research at both of these institutions has revolved around developing quantitative methodologies for biomedical applications.

As an undergraduate at Princeton, I worked on the image reconstruction problem in single-particle cryo-electron microscopy (cryo-EM). Cryo-EM, named the “method of the year” in 2015 by Nature and for which the 2017 chemistry Nobel Prize was awarded, is a promising new technology for visualizing macromolecules in their native state. I proposed a methodology to reconstruct multiple conformational states of a molecule and thus allow new insights into its function, based on estimating the covariance matrix of its 3D structure from 2D projections.

At Stanford, I became fascinated with the statistical challenges of analyzing high-throughput genomics data. I identified two broad aspects of genomics data and its analysis for which multiple testing and variable selection methods were lacking: structure and exploration. I developed methods that allow scientists to search for discoveries among structured sets of hypotheses while retaining provable false discovery rate guarantees. Furthermore, I developed a means to bound the false discovery proportion (FDP) simultaneously across a path of increasing rejection sets. This “simultaneous selective inference” approach allow scientists to explore a menu of rejection sets and FDP bounds, choosing a set to their liking while preserving the validity of the Type-I error bound.

Through my experiences as a tutor, teaching assistant, and course instructor, I have found that I greatly enjoy teaching. I have taught students of all levels and backgrounds, from leading sections as a teaching assistant for undergraduates with non-technical majors to serving as the instructor for the qualifying exam workshop for statistics PhD students. In addition, I have led initiatives both as an undergraduate and as a PhD student to provide academic support to my peers. I am excited to teach and mentor a diverse range of students as an assistant professor.

I would be excited to join the statistics department at Berkeley. My existing research on multiple testing, variable selection, and genomics already fits in well with that of current faculty members, and I would love to learn more about other strengths of the department, like causal inference. I am impressed by the Berkeley statistics department’s strength in both theoretical and applied statistics, and I am confident I would enrich the department with my research expertise and passion for teaching.

Please also see my research, teaching, and diversity statements, as well as my CV and the recommendation letters I requested on my behalf. Thank you for your consideration and please contact me for any further information. I look forward to hearing from you.

Sincerely,

Eugene Katsevich