PIN PROGRAM IN NEUROSCIENCE HARVARD UNIVERSITY

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January 27, 2023

Dear Search Committee,

I enthusiastically write this letter to apply for the Tenure-Track Assistant Teaching Professor position in the Cognitive Sciences Department at the University of California, San Diego. I am currently pursuing a Ph.D. in Neuroscience and a Bok Teaching Certificate at Harvard University, both of which I will complete this December. I have over 8 years of teaching experience at both the undergraduate and graduate levels, including 5 semesters as the instructor of record for 3 unique courses, 1 semester as a head teaching fellow of a large introductory course, and 12 semesters of experience as a teaching assistant across 10 unique courses. My teaching has been recognized by students and faculty alike: I received Rice University's Student-Taught Course Teaching Award as well as Harvard University's Certificate of Distinction in Teaching for 2 consecutive years. Additionally, I have experience with undergraduate advising and am involved in educational outreach initiatives targeting underrepresented minorities. I am thus well-positioned to continue my teaching, service, and research at UCSD as an Assistant Teaching Professor of Cognitive Science. Below, I highlight several aspects of my experience that make me an ideal candidate for this position:

As a Head Teaching Fellow for *Artificial and Natural Intelligence*, I revised the course substantially in response to student feedback by creating a new discussion section curriculum and rewriting the problem sets and exam to better gauge students' understanding of the material. I also gave several lectures, taught my own weekly section of 18 students, and managed a teaching staff of 5 TFs. As evidenced by both formal and informal course evaluations, the redesign was extremely well received, increasing the overall course rating from 3.81 to 4.24 (out of 5). In Spring 2023, enrollment more than doubled (to 220 students!), in part due to my efforts at improving the course. My experience as Head TF was critical in developing my course management skills and in learning how to incorporate student feedback to improve learning outcomes.

I also have experience creating and teaching my own courses. As an undergraduate, I taught 3 semesters of *How Music Plays the Brain,* a seminar course on the intersection of music and neuroscience. As a classical pianist, I became interested in cognitive neuroscience because of my love for music. I came to college wanting to explore the intersection of the two, yet when I realized that Rice did not offer such a course, I decided to create and teach one myself. The course, which explores the latest research in music cognition, was an instant hit and over-enrolled for all three semesters it was offered.

As a first-year neuroscience PhD student at Harvard, I saw a need and demand in the department for a graduate-level course on the mathematical concepts underlying common analysis techniques used in neuroscience. To meet that need, I developed and taught *Math Tools for Neuroscience*, a course that covers important math concepts such as linear algebra for the analysis and modeling of behavioral and neural data. The course was so well received that my PhD program recognized the need for more computational neuroscience courses and hired a Curriculum Fellow to teach it permanently. In the next year, the course became a core requirement for all Harvard Program in Neuroscience students intending to complete the Certificate in Computational Neuroscience. As these experiences highlight, my approach to course design has always been motivated by the desire to fill a need. As the interdisciplinary field of cognitive science continues to grow, I am certain there will be even more of a demand for courses that explore the intersection of fields.

I am committed to making my classroom environment a diverse, equitable, and inclusive place for students of all backgrounds and experiences. Seeking opportunities to receive further training in inclusive teaching practices, I became a Morehouse and Harvard Partnering In Neuroscience Growth (MAHPING) Pedagogy Fellow. Through this program, I gained formal training in evidence-based, active learning techniques and culturally responsive pedagogy. I then was able to apply what I learned in co-designing and teaching a short course with 6 other PhD students across both Morehouse and Harvard. The lessons I took from this training fellowship were truly invaluable and continue to inform my pedagogy. As an educator, I hope to continually cultivate intentional teaching practices that foster inclusive and equitable classroom environments.

Outside of the classroom, I have dedicated a significant portion of my time to mentoring students at all levels. During my PhD, I have directly mentored 1 PhD, 4 undergraduate, and 2 high school students on independent research projects. Additionally, I work as a Resident Tutor at Quincy House, a 400 student dormitory and community where I live with and mentor Harvard College students. In this multifaceted role, I help students plan and navigate their academic curriculum and seek additional support and resources when needed. Finally, I also value being a part of the community at large. Through initiatives like BrainSTEM (Houston) and HPREP (Boston), I have engaged local underprivileged and underserved minority high school students in science through teaching and mentoring. I cherish such opportunities to give back to the community and will continue seeking them out at UCSD through initiatives such as the BioEASI and UCSD Neuroscience Outreach Programs.

I am particularly interested in UCSD due to its collaborative, interdisciplinary environment and diverse student body. I strongly resonate with the university's mission of providing outstanding teaching and advancing diversity, equity, and inclusion. I believe that my experience teaching across neuroscience, psychology, AI, and mathematics in courses of all sizes will strengthen pedagogy in the Cognitive Science department. My sensitivity to and experience with issues of diversity, equity, and inclusion enable me to serve students from all backgrounds and identities. My mentoring experience has also prepared me to academically advise students within the department. Among the courses I am most interested in teaching are: COGS 1, 2, 11, 14A, 14B, 17, 20, 87, 101A, 101B, 102A, 107A-C, 108, 109, 118A, 118B, 118D, 119, 157, 164, 180, 182, 202, and 203. I would also be interested in supervising CogSci Honors Thesis students and developing new undergraduate cognitive science courses.

Thank you for your consideration, and I look forward to hearing from you soon!

Sincerely,
Lucy Lai