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To
Hiring Committee
Department of Biomedical Engineering
Whitfield University
Westbrook, MA 02481

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Dear Members of the Hiring Committee,

Your department's work at the intersection of structural biology and therapeutic design resonates with the research program I have built over the past three years: using machine learning to accelerate protein engineering decisions that would otherwise take months of experimental iteration. As a postdoctoral researcher developing ML-guided enzyme screening pipelines, I am excited to apply for the Assistant Professor position in Computational Protein Engineering (BME-2026-0042), where I would establish an independent group bridging data-driven protein design and biomolecular simulation.

At Lakewood University, I fine-tuned the ESM-2 protein language model on 45,000 experimental melting temperatures to screen 8,500 enzyme variants for industrial thermostability, compressing what would have been over a year of wet-lab work into 48 hours of computation. Five of our top seven candidates were confirmed experimentally by collaborators via differential scanning calorimetry. I then co-developed an open-source transfer learning framework that reduces labeled training data requirements by 60%, now adopted by four external research groups. More recently, I extended our ML pipeline to predict enzyme tolerance across eight organic co-solvent systems, opening a pathway toward engineering biocatalysts for green chemistry. This research trajectory, from classical MD to ML-accelerated protein engineering, reflects the kind of program I would build at Whitfield.

My doctoral work at Westfield established the simulation foundations that make this ML approach rigorous rather than purely correlative. I developed enhanced sampling protocols that predict protein folding temperatures within 8 K of experiment, benchmarked four force fields for intrinsically disordered proteins, and calculated ligand binding free energies across three drug target families with sub-kcal/mol accuracy. I also built the curated thermostability database that directly enabled my postdoctoral ML work. Throughout, I mentored three graduate students and developed computational lab modules now used department-wide.

I would welcome the opportunity to contribute to Whitfield's strengths in biomaterials and therapeutic design. I could teach courses in computational biology, molecular modeling, and machine learning for biomedical applications. I look forward to discussing how my research program would complement your department's existing strengths and the collaborative opportunities available through your HPC infrastructure.

Sincerely,
Jordan Chen, Ph.D.
Postdoctoral Research Associate
Lakewood University