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Letter of intent PIBBSS

Dear Members of the Admission Committee,

My interests since my undergraduate has been in pure mathematics. My research is in the field of the Langlands program, which is at the intersection of higher category theory, geometry, and number theory. This has inevitably led me to the Langlands programs As I have taught more courses in universities, I have realized both the impact of AI and and research of social relevance. AI safety, particularly AI alignment, stands out as a field where my mathematical background can be applied. I feel this field allows me to engage in technical research (which I love), but also offers a platform to contribute meaningfully to society.

The PIBSS program stands out to me for its commitment to interdisciplinary research across complex systems and biology, areas that completely different to my focus on p-adic geometry and ∞-category theory. There is so much for me to look forward to!
My engagement with AI safety began last summer with coursework at the Center for AI Safety, marking the start of my active involvement in this critical field:

1. I am collaborating on a project exploring Singular Learning Theory and saddle-to-saddle dynamics using RLCT with the Cambridge Alignment Research Students.

2. I initiated and led a series of undergraduate reading courses (SOUL) at Johns Hopkins, delving into topics like alignment, misgeneralizations, and the nuances of inner and outer alignment.

3. I am also working on projects in multilingual NLP and computational social science to broaden my AI research skills, distinct from my primary focus but essential for a well-rounded understanding of the field.

4. I will be participating in research conferences in proof assistant (LEAN), where I hope to find integrate NLP methodologies.

As I approach the completion of my Ph.D. in pure mathematics at Johns Hopkins in 2025, my ambition extends beyond advancing theoretical mathematics. I am keen to leverage my technical expertise to address problems in AI alignment. The PIBSS program stands out as an ideal platform for this transition because it:

1. Provides experience into research within AI alignment, and

2. Facilitates engagement with a like-minded community.

Transitioning from a background in pure mathematics, I recognize the challenges of entering a field traditionally dominated by computer science and applied mathematics. Nevertheless, I am enthusiastic about the opportunity to contribute my unique perspective and skills. I eagerly anticipate the possibility of joining PIBSS to further my career in AI safety and alignment.