

Petition for Independent Study

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Last semester, I completed an independent project with Prof. Hastings - “Electronic Analog Neurons” - in which we built and tested biomimetic, analog circuits to simulate neurons. That project led to a paper, which we are finishing up now in collaboration with Vassar University, targeted for submission this fall.

This semester, we intend to work on the theoretical and computational side of this project, and create a simulator for a minimal model of the nematode *C. elegans*. This will allow us to verify our experimental results, and make changes where necessary; it may also lead in to another paper.

In terms of relevant experience - I’ve had several courses in physics which had an emphasis on dynamics, and have also taken a fair amount of computer science. Furthermore, I am familiar with the project, as I worked on it last semester as well.

As a student looking towards the Columbia 3-2 dual degree program in applied physics, this research project would not only give me valuable practical experience at the intersection of biology, physics and computing - arguably one of the more valuable fields of research going forward - it also gives me the opportunity to publish a paper, which would increase my hireability for internships, and an opportunity to present

at a major scientific conference, giving me valuable opportunities for networking as well as giving the College more exposure in the sciences.