**Undergraduate Research Project**

|  |  |  |  |
| --- | --- | --- | --- |
| **Project Name:** | Exploring computational geometry | **Number of Positions:** | 2 |
| **Supervisor:** | Shuyi Weng | | |
| **Supervisor e-mail:** | weng83@purdue.edu | | |
| **Project Description:** | Although geometry is as old as mathematics itself, computational geometry was only really cherished and developed in the late 20th century, as “computer” gradually transitioned from a type of job to a type of machine much more capable at the job. The field has since expanded greatly, and the new connections to areas of mathematics, computer science, and engineering areas seem only to be accelerating. Nevertheless, computational geometry still harbors some of the most difficult unsolved questions in mathematics.  The project will begin with experimental mathematics, including an introduction to computing and computational geometry overall. Students will spend time reading about the theory of computational geometry, implementing algorithms to verify stated results, and exploring computational tools to provide evidence for new conjectures. | | |
| **Final Deliverables:** | Slide presentation, poster presentation, or conference presentation. | | |
| **Weekly Working Hours** | 5-10 | | |
| **For Credits/Voluntary** | For 2 credits (you must be available to take 2 credits without overloading) | | |
| **Desired Qualifications** | Required: MA 265 (linear algebra) or equivalent  Preferred: programming experience (not language-specific) | | |

**If you are interested in this research project, please reach out to Shuyi Weng (weng83@purdue.edu) by August 23.**