





**Faculty Member Contact Information**

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|---------------------|---|
| <b>Name</b>         | Dr. Nima Lotfi                          |
| <b>Contact Info</b> |   |
| SIUE Email          | nlotfiy@siue.edu                        |
| Campus Box          | 1805                                    |
| <b>Department</b>   | Mechanical and Mechatronics Engineering |

**1 Funded, 2 Unfunded URCA Assistants**

|  |   |   |
|--|---|---|
|  | This position is <b>ONLY</b> open to students who have declared a major in this discipline. | <b>M</b>  |
|  | This project deals with social justice issues.  |    |
|  | This project deals with sustainability (green) issues.                                      |    |
|  | This project deals with human health and wellness issues.                                   |  |
|  | This project deals with community outreach.   |  |
|  | This mentor's project is interdisciplinary in nature.                                       | <b>I</b>  |

**Are you willing to work with students from outside of your discipline? If yes, which other disciplines?**

- Only similar fields

**How many hours per week will your student(s) be required to work in this position?**

(Minimum is 6 hours per week; typical is 9)

- 9 hours

**Will it be possible for your student(s) to earn course credit?**

- No

**Location of research/creative activities:**

- EB0013, Engineering Building

**Brief description of the nature of the research/creative activity?**

This project involves design, development, and application of ground robots and drones. The combination of these two robotic technologies can be very powerful in various applications. One specific area of interest is Agriculture in which we will explore the potential improvements to monitoring and management of various cropping systems. We will also look into development of various robotic technologies for educational purposes.

**Brief description of student responsibilities?**

- Conducting scholarly research on state-of-the-art in regard to robotics
- Mechanical structure fabrication, assembly, and optimization
- Electrical and electronic subsystem development
- Algorithm and program development
- Testing and validation

**URCA Assistant positions are designed to provide students with *research or creative activities* experience. As such, there should be measurable, appropriate outcome goals. What exactly should your student(s) have learned by the end of this experience?**

The undergraduate student will take part in the design and development of different subsystems.

Therefore, involvement in this project will result in a multidisciplinary experience for the students in areas such as mechanical engineering, electrical engineering, and computer science. At the end of this project, the student should be able to describe, design, and develop various subsystems in a robotic system. My previous URCA assistants have gained valuable knowledge through their involvement in research. My previous URCA assistants have typically worked with me for more than one semester and have been instrumental in training the new assistants and providing sustainability to the research in my group.

**Requirements of Students**

**If the position(s) require students to be available at certain times each week (as opposed to them being able to set their own hours) please indicate all required days and times:**

- N/A

**If the location of the research/creative activities involves off campus work, must students provide their own transportation?**

- N/A

**Must students have taken any prerequisite classes? Please list classes and preferred grades:**

- N/A

**Other requirements or notes to applicants:**

- N/A