Faculty Member Contact Information

Name	Dr. Robert LeAnder
Contact Info	
SIUE Email	releande@siue.edu
Campus Box	1801
Department	Electrical & Computer Engineering

1 Funded, 2 Unfunded URCA Assistant

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

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

- Yes, my project is truly interdisciplinary, please also mark me as interested in taking students from these areas: Psychology, Biology, Nursing, Engineering

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

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

- No

Location of research/creative activities:

- Engineering Building

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

Key Aspects of the Research:

1. Perceptual and Cognitive Training:

Students will participate in a systematic training regimen aimed at enhancing their intuitive perceptual abilities. This training will take place in a lab setting for 1.5 hours, three times per week, and will involve exercises designed to help participants access non-visual information. The training is divided into phases:

- In the initial phase, students will work with their eyes closed, learning to differentiate colors and simple objects through intuitive perception.

- In subsequent phases, participants will practice with an opaque mask, with the goal of 'piercing' through visual barriers to perceive their environment without using their eyes.

2. Independent Practice:

Students will be expected to practice the techniques learned in the lab at home for 3 hours per week on alternating days. This independent practice will reinforce the skills they are developing and prepare them for further experimentation and training in the lab.

3. Research and Scholarly Review:

In addition to the practical training, students will spend 2.5 hours per week conducting academic research. This will involve reading journal articles, books, and other resources related to EOV (extraocular vision), sensory substitution, and cognitive science. Students will gain a deeper understanding of the theoretical underpinnings of EOV and will engage in critical analysis of the existing literature.

4. Experimental Design and Implementation:

As part of the research, students will assist in designing experiments that test the effectiveness of the training exercises. They will help develop the experimental protocols, collect data, and analyze results. This will give them hands-on experience in setting up a scientific study, tracking progress, and evaluating the outcomes of the training.

5. Collaborative Reflection and Reporting:

Throughout the project, students will maintain a reflective journal documenting their personal experiences, challenges, and successes during the training. They will meet regularly with the mentor and other research participants to discuss their progress, share insights, and refine research methods. At the conclusion of the research period, students will compile their findings and contribute to a formal research report.

Why This Project is Unique:

This research is unlike traditional classroom learning, as it combines hands-on perceptual training with academic research in an unexplored area of science. Students will gain a deep, interdisciplinary understanding of how the brain may be processing intuitive sensory information and how perception may extend beyond the five traditional senses. The project will push students to think critically and creatively, offering them an opportunity to contribute to cutting-edge scientific inquiry

Brief description of student responsibilities?

Description of Student Responsibilities

Students participating in the Extraocular Vision (EOV) Research Project will be responsible for engaging in a variety of activities that combine hands-on training, academic research, and experimental design. These responsibilities are structured to ensure that students are fully involved in every aspect of the research, allowing them to develop a broad range of skills while contributing meaningfully to the project.

1. Perceptual and Cognitive Training (Lab Sessions)

Students will be required to attend and actively participate in 1.5-hour lab sessions, held three times per week. During these sessions, they will engage in specific perceptual and cognitive exercises designed to develop extraocular vision. These exercises include:

- Phase 1: Training with closed eyes to enhance their intuitive ability to perceive colors and shapes without using their physical vision.
- Phase 2: Utilizing an opaque mask to further challenge their visual perception, pushing them to rely on non-visual sensory processing.

Students are expected to follow the training protocol closely and maintain focus during each session to maximize their development in the study of EOV. These sessions will be supervised by the mentor to provide guidance, adjust the training, and monitor progress.

2. Independent Practice

In addition to the lab sessions, students will be responsible for practicing the techniques learned during training at home for 3 hours per week on alternating days. This independent practice is essential to reinforcing the skills developed in the lab. Students will be expected to follow the same procedures used in the lab, applying the mental and physical exercises to their daily routine to improve their intuitive abilities.

3. Literature Review and Academic Research

Students will also dedicate 2.5 hours per week to conducting academic research. This involves:

- Reviewing journal articles, books, and other scholarly resources related to extraocular vision, cognitive science, sensory substitution, and related fields.
- Understanding the foundational concepts behind EOV and exploring how past research can inform the current study.

The literature review will allow students to contextualize their practical training within the broader scientific landscape, critically analyzing existing theories and approaches. Students will summarize their findings and share relevant insights during lab discussions.

4. Experimental Design and Data Collection

Students will assist in the design and implementation of experiments that test the effectiveness of the training exercises. Responsibilities in this area include:

- Helping develop protocols for tracking progress during the perceptual training exercises.
- Collecting and organizing data during lab sessions, ensuring accuracy and consistency in documenting results.
- Participating in the analysis of collected data, providing feedback on the experimental design, and helping to refine the training process based on observed outcomes.

5. Reflection and Reporting

Students are required to maintain a reflective journal documenting their experiences, challenges, and breakthroughs throughout the training process. This reflective practice will be essential for:

- Identifying personal strengths and areas for improvement in the EOV exercises.
- Noting any patterns or trends that emerge during their training, which could inform further adjustments to the experiment.

Additionally, students will collaborate with the mentor and other participants in regular meetings to share their reflections and discuss the progression of the research. Toward the end of the project, students will compile their findings into a formal research report, contributing to the project's overall scientific output.

6. Collaboration and Communication

Students will actively collaborate with the mentor and other research participants, engaging in discussions to share insights, troubleshoot challenges, and refine research methodologies. They will be expected to:

- Participate in weekly meetings to report on their training progress, discuss findings from their literature review, and provide input on experimental design.

- Communicate effectively in both written and verbal formats, contributing to the collective knowledge of the research team.

By the end of the project, students will have played an integral role in both the practical and theoretical development of the research, gaining hands-on experience in cutting-edge perceptual science.

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?

Expected Outcomes for URCA Assistants

By the end of this research experience, students will have gained a unique set of skills and knowledge that spans both qualitative and quantitative domains, reflecting the experimental nature of the project. Specifically, students will have learned:

1. Understanding of Extraocular Vision (EOV) Theories and Mechanisms:

Students will have developed a deep theoretical understanding of the principles behind EOV, including how it is hypothesized to work and the methods used to train and test this phenomenon. They will be able to critically engage with the literature and place the project within the broader context of perceptual and cognitive science.

2. Hands-on Experimental Skills:

Through participation in structured training and independent practice, students will have learned how to follow and implement an experimental design related to EOV development. This includes data collection, monitoring progress, and adjusting experimental protocols as needed. While some outcomes may be qualitative (e.g., personal breakthroughs in intuitive perception), students will also gain experience in organizing and analyzing quantitative data to assess training effectiveness.

3. Critical Analysis and Reflection:

Students will be equipped to conduct critical analyses of both the research literature and their own practical experiences during training. They will learn how to observe and document qualitative outcomes such as perceptual changes and the development of intuitive abilities, while also learning how to engage with statistical tools to evaluate any measurable improvements.

4. Research Communication and Reporting:

Students will have developed skills in synthesizing complex information and reporting their findings. Whether through reflective journals or final research reports, they will learn to communicate their experiences and insights effectively, adapting their reporting to include both qualitative narratives and quantitative results, where applicable.

5. Adaptability in Experimental Research:

Given the experimental and evolving nature of the research, students will learn how to remain adaptable in an experimental setting. They will be exposed to the challenges of working in an unconventional scientific field, where not all results are immediately measurable. This flexibility will prepare them to handle the complexities and uncertainties often encountered in experimental research, including the balance between qualitative observations and quantitative data.

By the end of the experience, students will have developed a broad skill set that includes critical thinking, experimental research techniques, and effective communication, all within the context of an innovative and highly exploratory project.

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:

- Requirements of Students
- For the Extraocular Vision Research Project, it is essential that students have specific availability to participate in the structured training and research sessions. While flexibility is offered on some days, there is a firm requirement for students to be available **on Fridays from late morning until 5:00 PM**. This time block is crucial for lab-based training sessions and collaborative research activities that are central to the project.
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- Many students may not have classes scheduled on Fridays, which makes this a suitable time for the intensive, hands-on components of the research. Therefore, **only students who can commit to being available on Fridays during this time frame** should apply for this position.
- In addition, students must also have availability for shorter lab sessions earlier in the week, as indicated in the general project description.

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

- There is no off-campus work, except for "homework assignments."

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

- Students should be at least at the junior level in their major field and have at least a B overall average.

Other requirements or notes to applicants:

- None