



**PI/CO-PI Management -**  
[Proposal Functions](#) | [HOME](#) ▶

[NSF Home](#) | [News](#) | [Site Map](#) | [GPG](#) | [GPM](#) | [Contact Us](#) | [FastLane Help](#)  
[Change Password](#) | [Logout](#)

## **Proposal Status** | [MAIN](#) ▶

**Organization:** Pace University New York Campus

### **Panel Summary #1**

**Proposal Number:** 0710790

**Panel Summary:**  
Panel Summary

I. A brief statement of what the proposal is about

The goal of this proposal is the development of a unified cognitive architecture for robots that tightly integrates perception, problem solving, and natural language. The architecture will be evaluated in the context of robot shepherding in a physics-based simulator.

II. Intellectual merit - the innovative / driving research

**Strengths**

The key idea is to use algebraic linguistics and the theory of semi-groups to represent perceptual, motor and problem-solving activities. This formal approach has been used to integrate RS (a control system for robots) and Soar (a cognitive architecture). The PI is well qualified for this work and has built a collaboration spanning two other universities.

**Weaknesses**

The proposal casts too wide a net -- it appears difficult to make significant progress on all aspects of this project within its 3-year scope. The proposal does not discuss its relationship to other attempts to integrate perception, action and problem-solving (ACT-R, Polyscheme, 3T (Kortenkamp), Yanco and Stein, Laird, Tambe). There is little detail on the shepherding task, and what the metrics of success on this class of problems will be. There is no baseline model to compare against, and there are no comparisons against other competing proposals for integration.

III. Broader impacts, including enhancing diversity and integration of research and education if applicable (strengths and weaknesses)

**Strengths**

The current project development team includes undergraduates and women. In the long term, systems to enable rich robot behaviors could have substantial interest. This project could have a broad intellectual impact by finding close connections between work in planning, language, perception and robotics.

**Weaknesses**

Collaboration among researchers in robotics, and linguistics and other cognitive scientists is desirable, but specific benefits should be identified.

IV. Impact of prior NSF funded research, if applicable.

V. Panel recommendation and justification, including key strengths and critical weaknesses; also indicate if the project is considered transformative (high risk/high payoff) and why.

The panel recommended placing the proposal in the not-recommended-for-funding category because it lacked details on how the approach will be evaluated experimentally, did not do a comparative analysis, and did not specify how the insights will transfer to other tasks.

The summary was read by the panel, and the panel concurred that the summary accurately reflects the panel discussion.

**Panel Recommendation:** Not Recommended For Funding

 [Back to Proposal Status Detail](#)

Download [Adobe Acrobat Reader](#) for viewing PDF files

**National Science Foundation**  
4201 Wilson Boulevard, Arlington, Virginia 22230, USA  
Tel: 703-292-5111, FIRS: 800-877-8339 | TDD: 703-292-5090

[Privacy and  
Security](#)