

# Putting Cricket in the Driver's Seat

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The fast-growing biomedical engineering program is where some of URI's most innovative and exciting research is taking place. But the latest biomedical engineering research project may be the most novel – and unlikely -- of all. Inside the College's labs, crickets are driving cars.

The Cricket Car project, which is being supervised by Electrical Engineering Professor Ying Sun along with graduate students John DiCecco and Eugene Chabot, explores biological signal-processing. The applications of biological signal-processing range from neurological disorders to cognitive-based prosthetic devices. A common challenge to all applications is acquiring the signal itself. Often, the type of electrodes used, the design of the pre-amp, the filtering, and the algorithm used to process the digitized signal have a combined synergy that can either enhance or degrade the overall process.

To address this problem, DiCecco and Chabot developed a microprocessor-based circuit that acquires and processes electromyographic signals (EMG) from the hind legs of the common field cricket and uses those signals to drive a remote control car. While this particular application is somewhat lighthearted in

nature, the underlying methodologies have much more serious implications. For example, the object of the processed signal could just as easily be a motorized wheel chair for a cerebral palsy patient instead of a remote control car.

The Cricket Car project, supported in part by the URI Partnership in Physiological Measurements and Computing and a BRIN grant, recently received additional funding from the URI Foundation. With this funding, the researchers intend to continue work on the project as part of the program's Electrophysiology for Biomedical Engineers course.



