

Celerity

Suppose you are a motorcycle manufacturer wishing to simulate the dynamics of a new design to assess its potential performance. Since the vehicle is unstable, you obviously need to simulate the rider as well. Realizing that the rider is also the controller, you need control engineers for the task. This need is one of several that motivate the special section of this issue.

In 2004, Alessandro Beghi contacted me about the possibility of a special section on motorcycles. I realized that the article on bicycles by Astrom, Klein, and Lennartson for the August 2005 special section on low-tech motion control would serve as a precursor for the suggested special issue. The linkage between these special sections proved to be superb.

To me, motorcycles and bicycles are fractional automobiles from which I'm careful to keep my distance while driving. But bicycles and motorcycles are rather different vehicles. Unlike your bicycle, which you outweigh by a factor of four to six or more, a motorcycle has a powerful engine and can weigh several hundred pounds. For starters, if a motorcycle falls over it might take several people to simply stand it back up.

Contributors



Alessandro Beghi and his wife Giuliana.



Simos Evangelou of the Department of Electrical and Electronic Engineering at Imperial College London. Small electric vehicles such as this one avoid a soon-to-be-imposed surcharge on vehicles entering London and can be recharged without charge at Imperial College.



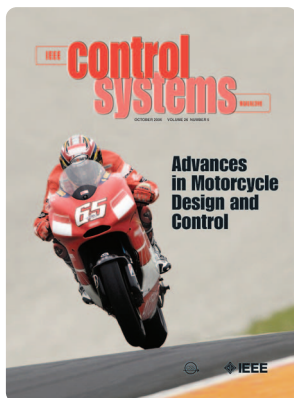
Richard Vinter, David Limebeer, and Neil Todd, all of Imperial College London. Richard works on tracking applications, while Neil is head of electronics support for the Electrical and Electronics Engineering Department. David is head of department.



Ruggero Frezza and his wife Elisabetta. They are the parents of Vittore, Desideria, and Cosimo.

The authors of the feature articles in this special section are serious about motorcycles. You immediately have that sense from the level of detail they provide about the challenges of controlling these vehicles. I found this out a different way when I visited David Limebeer in his office at Imperial College London shortly

before the final articles were due. A plaque on David's bookshelf testifies to his status as a certified motorcyclist, which, incidentally, involves riding at more than 150 miles per hour. Those activities are separate from some of the unique engineering accomplishments emanating from Imperial College London, such as the pneumatically actuated beer-bottle organ, programmed to play Scott Joplin's *The Entertainer*.



But I digress. In addition to four feature-length articles on motorcycle design and control technology, this issue includes several items that support its main theme. You will read about the use of field programmable gate arrays (FPGAs) for motorcycle control as well as the history of the monocycle, a motorcycle with only one wheel. We also have interviews with a world-class monocycle builder as well as the technical director of the Italian racing motorcycle manufacturer Ducati Corse. The book review in this issue focuses on relevant topics as well.

This issue also brings you a product review on global optimization, a topic that I hope *IEEE Control Systems Magazine* will explore more extensively in

future issues. We also have a report from SYSID06 held in Newcastle, Australia, as well as interviews with the president of Delta Computer Systems, a leader in motion control, and the editor of the *International Journal of Control*. And be sure to check out the crossword puzzle courtesy of Dan Simon.

In the December issue you'll read about more snapshots of process control. By the time that issue appears we'll practically be on our way to the Conference on Decision and Control in San Diego. Time flies.

Did I mention that proposals for special issues are always welcome? Oh yes, and our plans for the 2010 Kalman filter anniversary issues are well under way. If you have something to contribute, please contact me asap. There's much to be done.

Dennis S. Bernstein
Editor-in-Chief

IEEE Control Systems Magazine 



www.inteco.com.pl

MATLAB controlled systems



FPGA shaver - PCI or USB



Modular Servo



Mag Lev



HBS



TRAS



3D Drone



Pendulum on Cart



Multi Tank