WE RECENTLY BOUGHT A NEW CAR. WELL, NOT EXACTLY NEW, BUT RELATIVELY NEW AND IN GOOD SHAPE. (I HOPE.) THAT IN ITSELF ISN’T TOO INTERESTING, EVEN TO ME, THE BUYER. BUT THIS CAR HAS MORE ELECTRONICS THAN ANY I’VE EVER OWNED.

The manual alone is heavier than my cat, but let’s not anticipate.

It seems that one characteristic of new cars is their large and diverse array of features and gadgets. My car will

• tell me the outside temperature;
• give an audible warning when the temperature is low enough to make icy roads possible;
• tell me when the tires slip a little;
• tell me if a tire is low and show me which one;
• control the inside temperature separately for the driver and passenger;
• heat the seats independently for the driver and passenger;
• automatically turn on the wipers and adjust the frequency depending on the amount of rain;
• warn me if the seat belt isn’t fastened (of course!);
• tell me when an oil change is needed;
• obey several spoken commands, turning the radio on or off and/or selecting the station I mention;
• remember the seat position for two different drivers; and
• adjust the side-view mirror when reversing.

It probably does more, but I haven’t gotten to volume two of the manual.

I invite you to compare that to my beloved cat that we got at the shelter some years ago. She can

• run into the kitchen looking for dinner (or not, depending on who is calling);
• wait for 12 hours looking out the back window just in case the neighbor’s cat should walk by (and fall asleep for eight of those 12 hours);
• take five to 10 minutes to recognize my husband, almost every evening; and
• suddenly discover, after a mere seven years, that a dripping faucet is an interesting object to watch.

Barry I. Schneider is currently the program director for the Office of Cyberinfrastructure (OCI) at the US National Science Foundation. He spent 20 years in the Theoretical Division of Los Alamos National Laboratory before coming to the NSF in 1991 as a program director for theoretical physics in the NSF Physics Division. His research interests include theoretical chemistry and physics; atomic and molecular physics; application of many-body theory to atomic and molecular systems; quantum chemistry; application of large-scale computers to physics and chemistry; and numerical analysis. Schneider has a PhD in chemistry from the University of Chicago. Contact him at nsfphyman@gmail.com.

Francis J. Alexander is the director of the Information Science and Technology Center and also the deputy division leader for the Computer, Computational, and Statistical Sciences Division at Los Alamos National Laboratory. His research interests include statistical mechanics, computational physics, and optimal estimation. Alexander received a PhD in physics from Rutgers University. Contact him at fja@lanl.gov.
So which is more intelligent, my car or my cat? I have some idea of the computing that’s behind my car’s features, but I know much, much less about how my cat operates. In fact, my use of the word “intelligent” is, well, not too intelligent. Because I’m not really asking about intelligence and I already know that much of what I observe in the behavior of my cat can be imitated by software, up to and including the discovery of faucet entertainment. What I don’t have any idea about is what’s going on when the cat thinks.

The topic of cognition is now a very hot research area, one in which computational scientists are already making contributions. I think, however, that many ideas are yet to come—the world of computing will have much more to say about this subject. One of the most ancient and great questions is how does a thought start? If I decide to move my hand, my brain tells my hand to move. But what tells my brain to tell my hand to move? Is something like the operating system (OS) boot process going on? Are there a few basic commands issued to an architecture built to receive them?

This is just one of many ways in which I think our community might have an impact on research in cognition. ❖

If I decide to move my hand, my brain tells my hand to move. But what tells my brain to tell my hand to move?

Selected articles and columns from IEEE Computer Society publications are also available for free at http://ComputingNow.computer.org.

2012 Scientific Computing with Python Conferences

SciPy2012

July 16-21 • Austin, TX

http://conference.scipy.org/scipy2012/

EuroSciPy

August 23 - 27 • Brussels, Belgium

http://www.euroscipy.org/conference/euroscipy2012

SciPy.in 2012

Scientific Computing with Python Conference

India • Date TBA • http://scipy.in