Dr. Stephen Boyd’s speech for Dr. Luenberger’s retirement

I am really happy to be here to celebrate David Luenberger. I am not just a huge fan, but a super duper fan. When I was a graduate student in Math I read the red book, and became a fan. I was in pure math, and I remember thinking that this was the most applied book I’d ever read (boy was I innocent), and it was just great. It was, above all, super clear. I was a snob then; Rudin was my standard. I went on to read the tan book and the blue book, before I got to Stanford. Those books served as a perfect model for me, the goal in clarity and writing that I would strive for (and still do). Still in graduate school, I read those books, and said, "That's what I want to do."

And then we became colleagues. (And yes, of course I've read all the other books: green, purple, and the typewriter one.)

Unlike many people here (but maybe not all) I can identify the exact moment I went from being a fan of David Luenberger, to a life-long, super duper fan.

The year was around 1985. I had just arrived at Stanford, and was a young Assistant Professor (like David in 1963). We were both on a PhD defense, in the (late) Terman building. (This is going to get slightly technical, but I think the main ideas will come through.) The topic was something involving applied signal processing. The student started in by saying:
"The signal was dirty, so I low-pass filtered it. There was a drift in it, so I de-trended it, and there were some spikes, so I median filtered it. Then it was too smooth, so I sharpened it with a shaperning filter. Then I de-trended it again ..."

At this point, David cut him off (politely). And he said (although what he really said was probably more eloquent than my recollection):
"What you are describing is what we here call the 'MIT way'. You reach in your toolbox, grab a tool, make an adjustment, then get another tool, and so on, quitting when you're tired or it looks OK.

Here is the 'Stanford way': You say what it is you would like to do, independent of how you might do it. And then you try to do what you want, either exactly (when possible) or approximately (when
necessary), using the tools you have. So: Exactly what is it that you would like to do with your signal? What are you trying to achieve?"

And I simply thought: YES! It was at that exact moment that I became a super duper life long fan. This is why I became an academic; to bring clarity to confusion and muddle; to bring methods to ad hoc activities. And, also, to teach.

The student looked at him, a littled puzzled. After a pause, the student got that 'Aha' look on his face. I could see that real learning had just happened, right in front of my eyes. The student looked up with confidence and replied:

"After de-meaning it a second time, it was too spiky, so I median filtered it a second time. And then I smoothed it out with a moving-average filter."

You should know that the student passed.

David, you should know that you have been a model and a hero to me, since I was a kid in graduate school, and right up to the present moment. Of course the numbers (of books sold, citations, etc.) tell us about the wide influence you have had. I'm very happy to be just one specific example of the many many people you have influenced, in no small way.