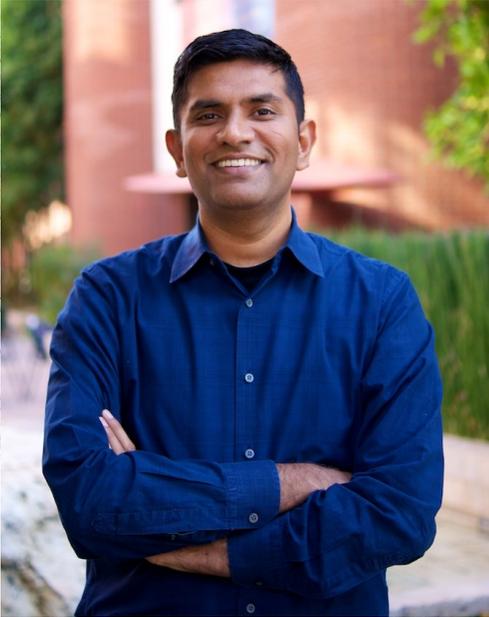




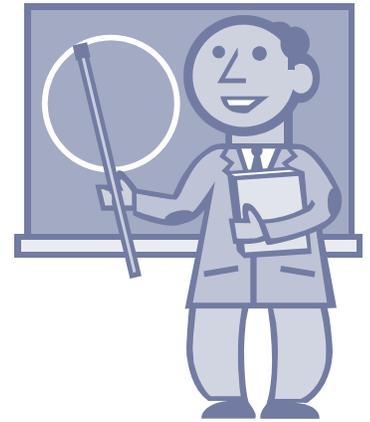
Bhaskar Krishnamachari



Bhaskar Krishnamachari is an Associate Professor and Associate Chair at the Ming Hsieh Department of Electrical Engineering at University of Southern California's Viterbi School of Engineering. He received his B.E. in 1998 from The Cooper Union for the Advancement of Science and Art, and his Ph.D. in 2002 from Cornell University. His research and teaching are centered on his interest in the design and analysis of algorithms, protocols and applications for next-generation wireless networks. He has co-authored close to 200 technical articles on these topics, including four conference articles that have received best paper awards. He is also the author of a book titled "Networking Wireless Sensors", published by Cambridge University Press. He is a recipient of the NSF CAREER Award, the ASEE Terman Award, and the IEEE-HKN Outstanding Young Electrical and Computer Engineering Award. In 2011, he was included in TR-35, MIT Technology Review's annual listing of the top 35 young innovators under the age of 35. He has served as an Associate Editor for the IEEE Transactions on Mobile Computing, the IEEE Transactions on Wireless Communications, and the ACM Transactions on Sensor Networks.

Why did you choose to study the engineering field?

I fell into engineering somewhat accidentally. In high school, when applying to colleges, I was primarily interested in being a biology major. I was thrilled to be offered admission at the prestigious Cooper Union in New York City, a unique institution that offered a completely free education to all its students in the form of a full-tuition scholarship. Cooper Union didn't have biology as a major, but it had a first-rate engineering school. I didn't really understand what engineering was at that stage, but I knew I couldn't give up this fantastic opportunity. I started out studying chemical engineering. But a year and a half later, I switched to electrical engineering, because of an inspiring teacher who spent an hour talking to a class about what this major was all about. Something about its sheer breadth --- spanning everything from the design of hardware to information theory --- really appealed to me. This was my first conscious choice to study a field of engineering, and I haven't ever regretted it.



What do you love about engineering?

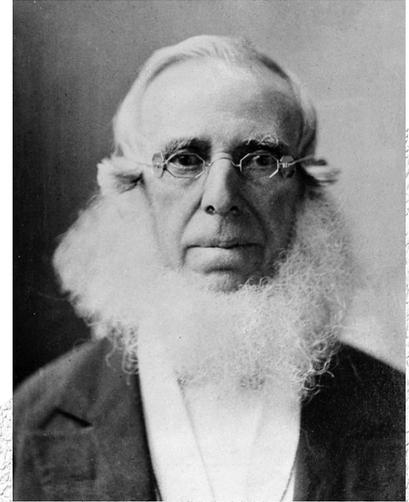
What I love most about engineering is the creative challenge. How do you develop something that provides a new functionality? How do you make something that is better, faster, cheaper, more efficient, and more sustainable, than anything like it before?

What don't you like about engineering?

My complaints are not about engineering itself but about the ways in which it fails to meet its full potential. As an academic, it's sometimes frustrating that for economic and socio-political reasons, it's not always the best technology that makes its way from the drawing board to reality. And I also think that it is at least partly due to economic and socio-political reasons that the vast talents of our engineers have not been harnessed sufficiently to focus on environmental issues.

Whom do you admire, and why?

Peter Cooper --- he was a nineteenth century inventor, industrialist, and philanthropist. He was, by turns, a tinkerer, a cabinet-maker, a grocer, the owner of a glue factory and then an iron works, and president of two telegraph companies. He built America's first steam locomotive, called Tom Thumb. Peter Cooper also invented Gelatin and was involved with the laying of the first transatlantic telegraph cable. I admire him for his brilliant mind, his entrepreneurial spirit, and most of all, his golden heart. He was a tireless do-gooder, someone who thought of wealth not as an end but as a means to help mankind. He founded The Cooper Union for the Advancement of Science and Art in New York City, because he believed that education should be open and free to all. Since 1859, this institute has been one of the few completely free private colleges in the United States.



How has the engineering field changed since you started?

Engineering has been revolutionized by improvements in information technology. The engineering workforce is now much more geographically distributed. Computing, networked communication, and sensing have become increasingly pervasive in many applications. Data-driven machine learning and statistical signal processing techniques are rapidly making our engineered systems more intelligent than before. On the negative side, I fear that there is less investment in basic engineering research from industry than in the past, which could affect long-term innovation and create big gaps between academic research and industry practice.

What direction do you think that the engineering field is headed in the next 10 years?

I think the biggest revolution in our lifetimes will be the design and deployment of the Internet of Things, which will drastically increase the reach of information technology into the physical world, from smart buildings to vehicles that talk to each other on the road. They have the potential to dramatically improve the quality of our lives. This revolution, in its early stages now, will continue to gather steam over the next 10 years. I also think more attention will be paid to the environment and green engineering.

What is the most important thing you have learned in the field?

Success in engineering, in academia and in industry, has a lot to do with how people relate to each other. It is important to seek out, associate, and collaborate with passionate and intellectually-stimulating people.

What advice would you give to recent graduates entering the field?

Identify, observe, and learn from as many mentors and role models as you can. There are many experienced engineers out there who can offer advice and help, and the more people you observe doing things well, the more you can learn about different approaches to creativity, problem-solving, working with people, learning, maintaining work-life balance, etc., and synthesize them to figure out effective approaches that would work for you. And, in turn, offer others as much of your help, assistance, and encouragement as you can --- it will make for a very satisfying career.

If you were not in the engineering field, what would you be doing?

I think I'd probably be a biologist of some sort.

Finish this sentence: "If I had more time, I would..."

...spend more time in Nature, watching, photographing, and learning about birds, plants, and insects."

