

# COPSS Presidents' Award: Tony Cai

The Committee of Presidents of Statistical Societies (COPSS) Awards are jointly sponsored by the American Statistical Association, the Institute of Mathematical Statistics, the International Biometric Society ENAR and WVAR, and the Statistical Society of Canada. This year, the COPSS Presidents' Award goes to Professor Tony Cai, an IMS Fellow. The award is presented in recognition of outstanding contributions to the statistics profession. *The Bulletin* asked Tony to share some of his personal and professional stories.



*Q: Congratulations, Tony! Your COPSS award came as no surprise to many of us. How did you react when you were first notified of the award?*

I felt tremendously honored and humbled, for the list of the past award winners includes many people of truly exceptional genius. I am grateful to the COPSS Award Committee for judging me worthy to be associated in this way with the other distinguished statisticians who have won the award in years past.

*Q: Your research has been on the mathematical and theoretical half of statistics. What has kept you busy in recent years? What is the current focus of your research?*

I have been working on a number of problems including nonparametric function estimation, high-dimensional inference, large-scale multiple testing, functional data analysis, inference for discrete distributions, and statistical decision theory. By and large, I have been interested in the optimality questions: For a given statistical problem, what is the best possible performance? How to measure optimality? How to construct optimal procedures? Answering these questions often requires the use of some mathematical and statistical theory. I have also been interested in applications to chemical identification, medical imaging and microarray data analysis. At the moment I am working on multiple testing under dependency and the so-called “large  $p$ , small  $n$ ” problems including optimal estimation of large covariance matrices and functional linear regression.

*Q: You studied mathematics in college. How did you become interested in a career in statistics?*

The short answer is “by chance”. I was not sure exactly what to study before going to Cornell as a PhD student in mathematics in 1992. But then by chance, or perhaps by destiny, I met and talked to Larry Brown in White Hall on my first day at Cornell. At the end of the conversation Larry said, “Maybe you can try these three courses to see if you really like statistics”. At the time I did not know much more than mean and standard deviation. And the rest is history. I remember that day very well because it was such a pivotal day in my life.

*Q: You have a very productive career, but you have also been active in professional service through editorial work and committee work. Are you happy with such a busy lifestyle?*

That’s a very good question. Actually I am not sure myself if I am happy with such a busy lifestyle. I wish I could do more with less time. It’s an honor as well as obligation to support our profession through voluntary services such as editorial and committee work. Unfortunately these “additional” professional services together with teaching and research make many of us extremely busy.

*Q: If you could make a wish for your professional career, what would it be?*

I am actually writing this on a beach in the Bahamas, after a day of playing with my kids on the water slides. I am happy that I have not checked my email for a week. If I could have a wish, I’d wish for no emails to worry about at all!

*Q: Who has influenced your life the most?*

My parents have had tremendous influence on shaping my view of the world. They have always believed in me—more than me, sometimes. Their love, encouragement and determination made all the difference. Most importantly, my father convinced me very early on that being a professor was the best job one could have. It was hard to resist the idea of having a job with only a few hours of teaching per week and more than three months of vacation every year. Of course, what he forgot to mention was that such a job required a long time of hard preparation and the vacation did not seem to last as long as it sounded. The person who has had the greatest influence on my professional life is my mentor and one-time advisor, Larry Brown, from whom I learned much more than statistics. Larry has been a constant source of inspiration and support.

*Q: You are in a business school. If you were offered double your salary to work in an investment bank, would you do it?*

One advantage of being in a business school is that I get to know many people working on Wall Street, and know how they work. In fact I *have* been approached by investment banks before, but I have never seriously thought about it so far. I love what I do. People say that the best job is the one that you are willing to work for free, but get paid. I think I have such a dream job. Perhaps one should never say never, but it would definitely take a lot more than doubling my salary in order for me to work for an investment bank.