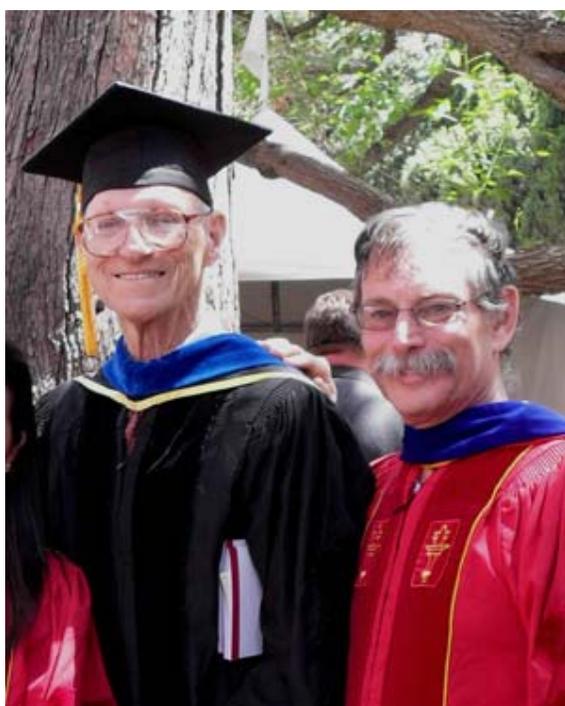


Engineering Superstar Alumnus Neil G. Siegel Returns to Viterbi to Earn a Ph.D.

Northrop Grumman senior executive studies for three years with software visionary Barry Boehm

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Mentor and student: Barry Boehm, left, and Neil G. Siegel at May 12 Bovard Hall hooding ceremony

One of USC's most illustrious alumni intensified his alumnus status in Bovard Auditorium May 12.

Neil G. Siegel already held USC B.S. ('74) and M.S. ('76) degrees as he prepared to receive a Ph.D. in Industrial and Systems Engineering from the Viterbi School's Daniel J. Epstein Department,

But unlike any other Ph.D. candidate honored in that day's hooding ceremony, Siegel was also already a member of the National Academy of Engineering, one of the highest distinctions in the discipline.

While continuing his distinguished career as a top-level executive at Northrop Grumman, Siegel had spent the past three years as a grad student studying under professor Barry Boehm -- studying a field in which his achievements were already so prominent that IEEE honored them in 2010 with one of its highest awards.

"Neil's is a remarkable story," said Dean Yannis Yortsos. "It is probably the first time ever that a Ph.D. committee had to judge the thesis of an individual who had already won the IEEE Ramo Medal! Or, of one who is the senior VP for engineering of a major corporation! Or who was a NAE member. "In all these three capacities," Yortsos continued, "Neil has demonstrated brilliance, commitment and tenacity. We cannot be more proud of his accomplishments."

"It was a great experience," said Neil G. Siegel, Ph.D., recounting his unusual path to 2011 doctoral Pomp and Circumstance. He first came to USC 40 years ago in 1971, he said, and after receiving his B.S. and M.S. degrees in mathematics, "I decided to work – I didn't want to be a starving student."

His work took him to TRW, where he met Boehm, then introducing his now classic COCOMO software development cost models. The two hit it off, and Siegel formed a long-term plan: "I would work and retire, and then go study with Barry." His resolution remained firm as time passed – but as Siegel approached age 55, he realized the 20-year age difference between himself and his mentor was becoming a critical factor. He did not want to give up the vision, "so instead of doing this in my leisure time, I did it while I was working in aerospace."

The transition from senior V.P. to working grad student "brought some shock," Siegel recalled, such as requirements to take graduate record exams, sit in classes, and carry on team projects with fellow team members young enough to be his children. And USC cut him no V.I.P. slack.

"It was good discipline," he said. "I had to do what they told me." By so doing, he emerged with his Ph.D. in Systems Engineering with a minor in mathematics while still managing to fit in summer adventures like a 2010 trip through central Asia with his wife, the polyglot (Turkish, Farsi, Tajiki, Russian among others) and widely-published author Robyn Friend.

Epstein Department Chairman Stan Settles underlined both the difficulty and rareness of his achievement. "In general, people with even moderate success in industry find it very difficult to do the research required for a dissertation," he said. "They are used to a system that rewards them for results rather than for conceptual understanding and contribution."

"Neil's level of accomplishment in industry," Settles continued, "far exceeds any other student's in my experience. Yet, he was able to develop the understanding and complete the process while still serving at a full-time executive level in a company. Very impressive!"

Settles was on Siegel's thesis committee, along with Boehm, Azad Madni, and James E. Moore II, all from the Epstein Department, and Ann Majchrzak of the USC Marshall School Department of Information & Operations Management.

Siegel's thesis was entitled "Organizing Complex Projects Around Critical Skills, and Risks Arising From System Dynamic Behavior" -- and Siegel has had much successful experience organizing complex projects. His IEEE Ramo award was for pioneering engineering work "that led to the successful development of the digital battlefield, a life-saving and integral part of U.S. Army operations," according to IEEE.

The Northrop Grumman digital battlefield FBCB2/BFT program is the Army's principal combat battle-command system, and has also been adopted by the U.S. Marine Corps. The system has been deployed on tens of thousands of vehicles worldwide, including in Bosnia, Kosovo, Afghanistan and Iraq. It is credited with significantly increasing combat effectiveness and saving the lives of hundreds of troops.

"He's done an amazing job with army battlefield digitization," said Boehm.

Siegel holds more than 20 patents in many domains, including real-time manufacturing, medical systems, communications protocols and computing systems. He has been a

member of review panels for the Defense Science Board, the Army Science Board and the Defense Advanced Research Project Agency. Besides his 2010 IEEE Ramo medal and his 2005 election to NAE membership, he has won Northrop Grumman's Chairman's Award for Innovation three times, and is a member of the Army's Order of Saint Barbara.

Now, with his new Ph.D. credential on the wall, he is now looking for his next "great experience." Perhaps in this one he will be able to attend an actual commencement – on May 13, he could not be at the Galen Center ceremony: "I was on business travel."