



*Pictured from left to right, Ranga Pitchumani, Department Head of Mechanical Engineering, Bassel Daoud ('83, '85), and Theodore Bergman, Associate Dean for Research & Outreach.*

*“Invention, it must be humbly admitted, does not consist of creating out of void, but out of chaos.”*

*Mary Wollstonecraft Shelley*

## SoE Alumni

### Bassel Daoud: With 270 U.S. Patents, An Inventor Extraordinaire

**A**lumnus Bassel Daoud (B.S., M.S. Mechanical Engineering, '83, '85) holds the distinction of being the fourth most prolific inventor in the world in 2000, according to a press release prepared by Lucent. A 19-year employee of Lucent/Bell Labs, Mr. Daoud was recently named a Bell Labs Fellow, a rare tribute that honors those who have contributed seminally to the development of telecommunications technologies. Since 1991, Mr. Daoud has received an astonishing 270 U.S. patents for his innovative methods for reducing production costs on Lucent products while improving the firm's competitive edge.

A successful career in America's premier communications think tank was a remote dream when Mr. Daoud began working at AT&T Bell Labs in 1986. At that time, he was an engineering doctoral student one year into his graduate studies. Bell Labs' sterling reputation, paired with an emerging family financial need, led him to accept

a job offer with the company. He began as a Member of Technical Staff, designing and developing optical and building entrance protector components and devices that protect telephone networks and cables from power-surges.

Following his promotion in 1997 to Distinguished Member of Technical Staff, he designed and developed low cost, feature rich, high density optical and electrical telecommunication equipment for building premises, central office, buried and aerial applications. Seven years later, he was named a Consulting Member of Technical Staff, a position that entails leadership of cross-functional design teams to optimize the mobility cost reduction program. In this role, Mr. Daoud coordinates the cost-reduction efforts of the cross-functional Network Solutions Group's Mobility team, comprising members of the R&D design group, product management and

supply chain network groups. His objective is to help these units interact collaboratively to optimize performance and features while reducing product cost. In this role, he serves as an advisor and facilitator who offers recommendations but strives to leave the inventive spirit intact.

Mr. Daoud thrives on the challenge of performing multiple functions throughout the design and development process, including brainstorming ideas, competitive analysis, target costing, design and development, human factors analysis, testing, customer interface/feedback, manufacturing, and even sales. Mr. Daoud's engineering designs reflect the Albert Einstein quote, "Everything should be made as simple as possible—but not simpler!"

His first patent, awarded in 1991, is a network interface device that allows a customer to quickly determine whether a telecommunications problem resides with the source supplier or with the end-user's line—saving time and money. In the intervening 14 years, he has developed another 269 patented inventions and ideas that are being used by not only Lucent but also Avaya (originally the Network Cable Systems group), Furukawa, AT&T, CommScope and Fitel USA Corp. Avaya alone owns 85 of his patents, which accounted for 21% of Avaya's total patent portfolio in 2000, when the company was

spun off from Lucent. Besides cutting production costs on a large array of products, these patented ideas have generated revenue through royalty fees.

Among his favorite designs is the 489 multilayered modular system, which he developed for both optical and electrical applications. Mr. Daoud explained that the 489 system was part of Lucent's Network Cable System included in the Avaya spinoff, and it was ultimately sold to CommScope. Employing an analytical, meticulous approach to design simplification, he effectively revived the product lives of another 20 mature electrical and optical interconnection products. "By incorporat-

his B.S.E. in mechanical engineering in just 3½ years and then enrolled in graduate school, where he earned his M.S.

Mr. Daoud attributes much of his success to the intensive engineering background he received at UConn. "UConn and its dedicated faculty members were the basis and the source of my engineering background that propelled me to succeed in my career at the Bell Labs," he said. He recalls his years at UConn fondly. "I recall Dr. Eric Jordan, who continuously emphasized topics in design for simplicity, design for manufacturability and design for efficiency; Dr. John Bennett, who captured the class's attention when he threw a mechanical bird

Early in his career, he said "I devoted myself to my career and felt much pride and ownership in my work. My dedication was reflected in the products I developed...My devotion to my job underscored my desire to help my company in every way possible. This feeling of ownership is what truly helped me become so productive in my career."

His commitment was enhanced by cultural values that Mr. Daoud brought with him from Lebanon, in the form of a strong sense of loyalty to an employer. He explained that this career loyalty "empowers me to do my very best and focus on achieving the impossible to help my company grow and succeed."

His educational background in mechanical engineering has proven fruitful for Mr. Daoud. "I have always loved mechanical engineering, because it resolves physical problems you can hold in your hands," he said. "The mechanical engineering mind comes in very handy in taking care of our daily mechanical issues, whether they are related to our jobs, cars, or at home." Looking into his crystal ball, Mr. Daoud predicts the dramatic expansion of wireless technology that will permit more people to be fully connected via laptop computers. Another important trend will involve the growth of optical technology, because it provides higher bandwidth and faster rate of data transmission.

In October 2005, Mr. Daoud was named a Bell Labs Fellow—the company's highest honor—for "pioneering and implementing innovative design and manufacturing principles for cost reduction optimization which has resulted in him being awarded the highest number of patents in the history of Bell Labs and the fourth highest in the world (2000). For developing cost reduction business processes and tools that delivered phenomenal margin improvements."

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ing plastics and a modular design, I reduced the number of product components from 108 to 8, product size by 85% and weight by 30%," he recounted. The result was a doubling of profit margins.

He was inspired to a lifetime of achievement, he said, by core principles of his native culture. As a child growing up in civil war-torn Lebanon, he was prevented from regularly attending school. Residents suffered greatly, not only through diminished educational attainment but also faded spirits and dreams. Coming to the U.S. to attend the University of Connecticut was the elixir Mr. Daoud needed to rekindle his dreams. "I promised myself not to take this great opportunity for granted and I vowed to study and work hard in order to succeed in life in every possible way." He completed

that flew across the classroom and then said 'Everything is possible'; Dr. Joseph Gartner, a truly caring advisor who always guided me to do what is best for me; Dr. Nejat Olgac, who was highly respected by many students—even those he did not teach; Dr. Robert Jeffers, who offered me my first teaching assistantship at a time when I was facing some financial hardship; and Tom Marcellino (former head of the Engineering Machine Shop) who was always ready to offer practical design ideas that were consistent with good engineering practices."

"Twenty years ago, I thought that UConn was one of the best universities in the USA; but now, UConn is even better than it ever was. It offers more extensive engineering programs that continuously reflect our current market needs. One thing that did not change was the devotion of the UConn faculty who are always eager to give their best in educating our students," said Mr. Daoud. He was recently named to the School of Engineering's Advisory Board.