

# MEPTEC Report

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**MEPTEC**

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# NUC

ONLINE EVENT

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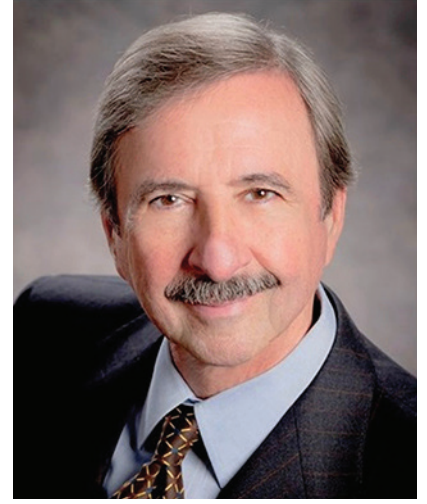
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## Catching Up with Roger Grace

Founder and President  
Roger Grace Associates

*Owing to a very diverse and accomplished association of MEPTEC members, there are many informative, instructional, and entertaining stories to be told. "Catching Up With..." will feature stories from and about our members.*

Roger Grace ([rgrace.com](http://rgrace.com) and <https://www.linkedin.com/in/rogergrace/>) joined the MEPTEC Advisory Board in 2022. This interview was conducted via email and edited for clarity.

**Wow, you've done so many interesting and exciting things over your career, it is hard to know where to start. How did you land at Northeastern University and what interested in you in Electrical Engineering?**

I was born in Cambridge Massachusetts and grew up in Somerville...the adjacent town. My mom was born in Portugal and emigrated to the US at the age of 14. Coming from a family of modest means, as a first-generation Portuguese-American, we did not have the necessary financial resources to have me attend college, and especially one out of the area, so I applied to several local Boston schools. I chose Northeastern since it had a co-op (i.e. work/study program) and was easily accessible by public transportation from my home. I received a scholarship for my freshman year and I made enough money at my co-op job to pay for the remaining four years of tuition (co-op at Northeastern is a five-year program). Virtually all of the men in my Somerville High School graduating class of 1961 who went off to college also chose Northeastern because of its immense value proposition...affordable tuition, proximity, convenient public transportation...and most importantly... they could receive an excellent engineering education and gain valuable experi-

ence vis-à-vis the co-op program and secure a great well-paying job (locally). I continue my close affiliation with Northeastern having served on several committees including the College of Engineering Industrial Advisory Board, organizing an all-day technical conference on printed sensors at their Silicon Valley campus and having been bestowed the College of Engineering Outstanding Alumni of the Year Award in 2004. (see Figure 1)



**Figure 1. Roger with his parents, Henry and Albertina Grace, flanked by Northeastern President Richard Freeland taken at the Boston Ritz Carlton Hotel on November 2001 during ceremonies commemorating his induction into the (alumni philanthropic) Frank Palmer Speare Society of Northeastern University.**

I knew that I wanted to be an engineer as a young boy. My parents bought me a mega-size Erector set when I was seven or eight and I was totally consumed in building things. I also frequently disassembled and re-assembled my bicycle's gears and my spinning fishing reel (I guess that this means that I was a young "gear head"). I grew up during the beginning of the space era...I was fascinated by the technology and I wanted to be a part of it...especially since there were so many companies located in the famous Route 128 area nearby engaged in this type of work. I was also very much encouraged to follow this course of study being significantly influenced by my high school

physics teacher...Mr. Paul Protopappas...I just loved solving physics problems.

**As you worked on your Bachelor and Master degrees at Northeastern, you also worked on antenna and microwave systems at Avco Missile Systems and Raytheon. This was way before microwave communication was as common as it is today. Did you work on any specific applications?**

I was truly blessed to have an incredible co-op assignment with Avco Missile Systems in Wilmington in 1962. The group to which I was assigned was staffed with many Northeastern co-ops...both undergrad and graduate, many of whom went on to become quite famous in later years working for Raytheon as senior managers. I worked on developing microwave components and antennas for missile re-entry vehicles. I started out testing components and plotting Smith charts of impedances and taking radiation pattern measurements on the antenna range. By the time that I was a junior, I was designing microwave components and antennas and I remained at that job after earning my BSEE. I may not have obtained the highest grades but I did receive the highest job offer of my entire 1966 Northeastern graduating class due to my significant design experience obtained during co-op.<sup>[1]</sup> After a year as a full-time engineer, and while attending Northeastern's MSEE program in the evenings, I accepted a position at Raytheon in Sudbury designing microwave antennas for active jamming systems. While there, I applied and was awarded a Raytheon Company Fellowship to complete my MSEE degree. After receiving my MSEE, Raytheon transferred me to Goleta (Santa Barbara, California) where I was a project engineer managing a team of technicians and engineers designing antennas and



feed structures for jamming systems and phased arrays for the B-1.

**What was working at Ford Aerospace here in Silicon Valley like in the 1970's compared to today?**

It became quite apparent to me during my Santa Barbara stint that I missed my days living in a big city. I then accepted an offer from my previous Raytheon supervisor who was then at Ford Aerospace in Palo Alto. I started as a senior project engineer and was able to move to San Francisco. At Ford Aerospace, I managed a team of engineers and technicians to develop antennas and communication systems for military and commercial satellites and spacecraft. I thoroughly enjoyed working with my team and the relative "pastoral" setting of Palo Alto in the mid 1970's. I had a pleasant 30 minute / no traffic commute from my San Francisco apartment! I later did a great deal of proposal writing and then making presentations on the NASA JPL Viking Orbiter '75 project that I was managing. I felt that this was my calling...not designing...and I decided to apply for a marketing position at Ford...which was not in the cards for a person who did not have any connections in the Department of Defense. I then accepted a position at Avantek (now HP) as a marketing engineer for the company's solid-state oscillators and amplifier products for the company's military communications business...visiting customers and managing a rep network sales force. At that time, I also began my MBA program at the evening UC Berkeley Haas Graduate School of Business program.

**How ground breaking was the Foxboro ICT microelectromechanical systems (MEMS) pressure sensors? How did you end up as the Marketing Manager at this medical device "startup"?**

My tenure with Avantek lasted two years. After that, I was employed for a brief time at an advertising agency in San Francisco as an account executive...but was not pleased with my situation. A colleague introduced me to Don Lynam, CEO of Foxboro ICT who was looking for a marketing person. This was an instant connection...Don was from the Boston area

and graduated from Northeastern...and a fellow Red Sox fan. He wanted to create a marketing function in his 90-person, \$5 million company and "groom" a successor... i.e. me.

Don, Bill Geene, and Gene Burk started the company in 1971 as a buyout from Fairchild Semiconductor. Fairchild was developing silicon sensors for a military avionics program using 1.75 inch

I recommended that he needed a marketing plan first, and he hired me to create one – my first client for Roger Grace Associates

silicon wafers. I created an integrated marketing communications (iMARCOM) program and conducted market research to uncover new application opportunities for our "integrated circuit" (now referred to as MEMS) piezoresistive pressure sensor product line. Joining Foxboro/ICT in 1980, I was blessed to be able to collaborate with several exceptionally talented engineers including Janusz Bryzek, who was a project engineer at the time. (Janusz recently passed and I helped organize and co-author an article which appeared in the December issue of the MEPTec Report.<sup>[2]</sup>) Together we were successful in developing the sensor industry's first disposable blood pressure sensor an opportunity I uncovered. I invested a great deal of time visiting hospitals and clinics around the US conducting in-person interviews with hospital administrators, physicians, nurses, and biomedical engineers to assess the

feasibility of developing this device and specifically its features, specifications, price-point, and details of its specific various application scenarios. As a result of the research findings, we decided to collaborate with Sorenson Medical to design and manufacture this product and bring it to market. This product became a major success at Foxboro/ICT. Its current global annual market is approximately 35 million units and is manufactured by several companies including NovaSensor.

**When you left Foxboro, you started your own company Roger Grace Associates. Was there something that inspired you to go out on your own?**

Short answer...I was fired! I believe that I was most successful in my role at Foxboro/ICT over my two-year employ. However, Foxboro corporate management decided to restructure the management team at ICT after Don Lynam resigned for personal reasons. I and several other close allies of Don lost our jobs in a "purge" in the fall of 1980. For over a year, I searched diligently but did not find a job that I wanted to accept. One of my previous vendors at Foxboro/ICT owned a lead management company and offered me the VP of Sales position. I recommended that he needed a marketing plan first and instead he became the first client for Roger Grace Associates.

My "big break" came as a result of being retained by the French Government's newly formed organization FTEC. FTEC's mission was to introduce French high-technology (this was considered to be an oxymoron by many of my friends and colleagues) to the US market. My role was to head up their "passives" group and to vet French companies who wished to enter the US market. These companies received significant funding from the French Government Department of Commerce to accomplish this. This was a three plus year consulting job and I loved going to New York City monthly and Paris bi-monthly to have meetings. While at FTEC, not only did I vet many French passive product manufacturers, I also created a manufacturers' representative network covering all of the US, visiting customers with the reps, setting up an applications lab, creating a promotions

program, and conducting competitive research on similar US manufactured products. My most significant success at FTEC was with Radiall which designs and manufactures microwave connectors and passive components and is a successful business to this day.

**You've worked with many different people and companies as a marketing consultant... Are there any particular engagements / projects that you are most proud of that you can discuss?**

My most favorite, gratifying and memorable experience since the founding of Roger Grace Associates in 1982 was with NovaSensor. In October 1985, I was part of the startup team of Kurt Petersen, Joe Mallon, Janusz Bryzek, and Joe Brown. I declined coming aboard full-time as their CMO and opted for a retained consulting position with stock options. My role at NovaSensor included conducting market research to determine product definition and details on competitive offerings. I was also responsible for creating and implementing an integrated marketing communications program with a focus on public relations to brand and position the company.

Through our close collaboration and a lot of hard work, NovaSensor quickly emerged from an obscure startup to an acknowledged industry leader. Giving presentations at technical conferences, including Sensors Expo, and publishing articles in many OEM electro-mechanical design publications gained us instant incredible visibility and awareness and resulted in much needed credibility in the eyes of our targeted designer community...and future investors. We won several international awards for the product launches that we created and won the prestigious R&D 100 Award for the silicon fusion bonding process technologies created by Kurt Petersen. We also contributed articles and our products were featured in many OEM design publications including a 34-page cover story in IEEE Spectrum (I believe that this was and is an all-time record) as well as extensive coverage in national daily publications including the New York Times, Washington Post and made several appearances on TV including 60 Minutes!

The most interesting thing was that NovaSensor had no shippable products for the first six months of the founding of the company... but with the significant experience, immense interest and enthusiasm of its founders, we decided that our strategy was to extoll the virtues and benefits of MEMS as a unique technology to address many of the emerging markets. This positioning and branding strategy was the basis of establishing NovaSensor as the technology spokesperson of MEMS technology. It also was key in the development of significant new business opportunities for our "micromachined sensors", a term that Kurt had created.

Following NovaSensor, I thoroughly enjoyed my consulting activities at another MEMS startup...Si-Time...working again with Kurt Petersen (CEO) and Joe Brown. Si-Time had a most unique MEMS oscillator which was developed at Stanford under the direction of Prof. Tom Kenny with intellectual property (IP) from Bosch. We were the fourth organization to enter the "system timing products" market...but within a period of approximately six months, we were again on the way of becoming the "industry darling" and industry spokesperson of MEMS silicon system timing products appearing in no less than six front-page articles in major international OEM design publications. All of this exposure provided Kurt and his team with the ammunition to obtain significant valuation in its subsequent rounds of VC funding. Once again, RGA was able to help capture several international awards for their most successful iMARCOM efforts as well winning a R&D 100 Award and a EETimes Award for best startup. Si-Time continues to this day as the spokesperson of the MEMS-based system timing products market.

**What wisdom have you collected from your experience and the MEMS industry luminaries you have worked with that you care to share? Especially if they are applicable to other technology areas.**

I have found in working with many dozens of companies over my last 40-plus years of technology consulting that my preference is definitely in startups and

small companies in the hardware space that have a unique product. Technology companies, especially startups, are typically product driven. And even though I am an engineer, I have "crossed over to the dark side" and became a technology marketer. My focus as a technical marketing consultant has been to help my hardware clients understand the market and the needs of the customer. The best way to accomplish this is to ask the customer what are their unfulfilled needs. This is no different than the homework assignments I gave my UC Berkeley students (more on this later).

We guide many of my clients by undertaking custom market research to best understand their potential customers and their competition's strengths and weaknesses. Finally, I am a major advocate of conducting extensive and well-planned research to best understand my client's internal competencies. The outcome of all of this research is to create a product solution that has a high level of potential success.

Additionally, I stress the addressing and communication of user benefits not product features. Quite frequently engineers are focused on achieving the best performance... Instead, they should focus on how the product specifications, features, and price -point make it the best possible solution to the customer's needs. I always point out that they do not have to be perfect, just better than the competition. It is not what you have to sell but rather what the customer needs is my mantra.

My true pleasure in consulting is to make a discernable contribution to the success of the organization vis-à-vis collaborating with clients who embrace and value me as an integral part of their team not as a "hired gun". My substantial engineering background has definitely helped me be accepted and considered as a peer by my clients. I truly enjoy working with startups with people who are wildly creative, with lots of energy, and are focused on achieving results and are not afraid of failure. Some of my most favorite clients are Janusz Bryzek, Kurt Petersen, and Joe Mallon...the NovaSensor founders.

**How do you explain what Roger Grace Associates does especially for those**

## who confuse Marketing with Marketing Communication?

I inform my clients that hiring RGA as a retained marketing consultancy is like hiring a full-time VP of marketing but without the overhead and cost while achieving extraordinary results. We perform all of the classical marketing functions not only planning like many consultancies provide, but rather executing the plans through to completion, measuring the results and making recommendations on how to optimize the results...identical to a classical closed-loop control system. The focus of our client base is on technology-based hardware companies. Over the past 20 years, we have focused primarily on addressing the MEMS and sensors areas and are able to provide our clients with an insightful and highly experienced perspective on how to create products and how to best bring the products to market using the many tools of an iMARCOM program driven by extensive market research. It has become quite obvious to me over the years that marketing communications was not understood by my engineering-driven clients especially in the MEMS and sensors arena. I have seen the positive outcome of implementing an iMARCOM program with many of my clients and have especially experienced the incredible ROI of well-planned and executed public relations programs especially in the authoring of articles and presentations at key industry events. Most importantly, this approach of making presentations at conferences and writing articles are fully embraced by RGA to create our position and brand in the industry as leaders in the field of technology marketing. And most recently, with the emergence of social media, the “toolkit” of classical MARCOM elements has been augmented by social media and especially email blasts, LinkedIn, Facebook, and webinars to supplement the reduction of in-person conferences during COVID.

## As someone with an extensive Engineering background how do you approach Marketing differently than someone without this experience?

When I ask my clients why they selected RGA over other technical marketing

consultants...the answer is consistently because of my in-depth engineering background and my ability to be able to understand their technology and manufacturing processes as it applies to the customer’s needs and applications....and most importantly, they trusted my judgment and subsequent recommendations. I am able to participate and contribute to technical meetings and understand the



**Figure 2. Roger was the recipient of the Inaugural Sensors Expo Sensors Industry Impact Award during ceremonies held during Sensors Expo in June 2016 in San Jose, California.**

technology concepts and applications and the competitive landscape for their product offerings....and there is no ramp-up time..."I can hit the beach running". I also use my several years in corporate marketing positions at Foxboro/ICT and Avantek to be able to place myself “in their shoes” as corporate marketing people. Another main benefit my clients gain from my extensive design engineering knowledge is my ability to effectively communicate with editors of publications who are aware of my technical background, the story of my clients’ technology and its customer benefits in solving application challenges. This is accomplished while simultaneously

understanding the editorial process and providing editors with information they require to help them create their articles. My contributions to the sensors industry were acknowledged by the bestowing of the Inaugural Sensors Industry Impact Award by Sensors Expo during the 2016 Sensors Expo. (see Figure 2)

## MEMS technology took many years to go from concept to the widespread deployment of today especially with tens of MEMS sensors in every smartphone. Does the similar story of development to market apply to other technologies?

Many years ago, and with Professor Steve Walsh of the University of New Mexico, we conducted a market research study to determine the time for approximately a dozen MEMS sensors to successfully translate from discovery to full commercialization...and the answer was approximately 30 years. MEMS pressure sensors were the first in this lineup and it took approximately 36 years. (see Figure 3.) I have lectured extensively about the outcome of this research and published the results for well over a decade and believe that it is typical of all products. This “MEMS commercialization process”, as shown in Figure 4, progresses through the four states of the product life cycle process...from introduction... to growth... to maturity and to finally to decline for most technology products. Currently, MEMS is solidly in the maturity state while other newer sensor technologies including printed and functional fabric technologies are at the beginning of their growth cycle.

## Please tell us about the Roger Grace Associates MEMS Industry Commercialization Report Card. Why did you start doing this and why is it important?

I decided in 1998 to revisit this earlier research and to determine its rationale... my conclusion was that there are a number of critical success factors that all need to be in place to make this happen. After considerable research and a thorough review of industry offerings addressing this topic, I decided to create the MEMS Industry Commercialization Report Card.





was truly gratifying. For the first class of each semester, we would invite one of the students whose plan was successfully funded in the past. They returned to the class with their great stories of success and all dressed up in fashionable Armani suits with their BMW convertibles parked downstairs in the faculty parking lot. The ideas that the students presented spread the spectrum from hardware to software...from low tech to high tech and from B- to -B and B- to- C sectors.

During my many lectures, I constantly impressed upon the students the incredible value in conducting market research and especially, if possible, in-person at the nearby Emeryville Best Buy parking lot and recommending that they wear their Cal sweatshirts and hats to establish their credibility. This approach is no different, but without the wearing of the Cal clothing, to what I recommend and conduct as part of my marketing consultancy to my clients where we conduct in-depth and person-to-person research at trade shows, focus groups or over the phone...and when these are not readily available...via email/web.

### What do you do in your spare time to relax? Any particular hobbies?

My hobby portfolio diminished significantly as a result of COVID since it put a major damper on airline travel which was one of my favorite things to do. In the past, I was fortunate to have several international clients and made many trips to Europe especially as the president of the Micro and Nano Technology Commercialization Foundation (MANCEF) to give presentations at technology conferences. As my visits to Europe continued, I was invited to become a member on various EU Technical Committees and technical conference organizing committees and attend many meetings and conferences including the Smart Systems Integration Conference and the Advanced Microsystems for Automotive Applications. I always made it a point to spend additional time after these events to do some sightseeing in nearby areas. I especially loved visiting Paris and travelling to various wine regions to do wine tasting which is perhaps my most favorite hobby. Also, since I am a WW1 and WW2 buff,



**Figure 5. Roger warming up for throwing out the ceremonial first pitch at the annual Northeastern University/Boston Red Sox ballgame at the opening game of the 2017 Spring Training Season in Ft. Myers, Florida.**

I have visited many of the battlefields there including the landing beaches in Normandy and Bastogne, Belgium (Battle of the Bulge) for WW2 and Ypres, Belgium and Verdun, France for WW1.

I spend the majority of my time now at my Pacific Grove (Monterey) California 1905 “bungalow” tasting the local wines and visiting the Monterey Bay Aquarium. Also, I am a major classical music lover, listening to music and attending concerts whenever possible. I have had the great pleasure of visiting many of the beautiful concert halls in the US and in Europe. I have attended and am a patron of the annual Carmel Bach Festival for over 30 years.

I am a huge baseball fan of the Boston Red Sox. I remember starting at about seven years old attending Sox games at Fenway Park with my dad, another major fan. I continue to this day as a member of Red Sox Nation having had the immense pleasure of attending the Sox’s winning of the 2013 World Series at Fenway Park over the St. Louis Cardinals. And

celebrating with my parents the Sox’s World Series victory in 2004 breaking the 86-year “curse of the Bambino”. I also had the honor of throwing out the ceremonial first pitch at the Northeastern University/Boston Red Sox Spring Training game in Ft. Myers, Florida in 2017. (see Figure 5) I have visited 15 of the 30 major league ballfields as part of my love for the game and expect to visit them all over time.

Finally, I am a major “foodie” and love to watch cooking shows...Lydia Bastianich on PBS especially... and cooking Italian food. I believe that this started while I was a teenager in Boston while watching Julia Child a.k.a. The French Chef on TV from the Boston PBS station WGBH. Julia lived nearby and on occasion I would see her at lunch in Harvard Square.

### What are your favorite places to visit for work and for pleasure?

Because of Covid, I have had to curtail my planned visits to many places especially Boston, where I still have family, and visit professors and administration colleagues at my Northeastern alma mater. I love to attend Red Sox games during the summer months as well as visit Cape Cod and eat lots of fried clams and lobsters! My future travel plans are to visit Cuba, the Baltic countries and St. Petersburg Russia (when political situation is better) and to take a wine cruise up the Douro River in Northern Portugal. ♦

### References

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