

# Infinite possibilities

Pamela McCauley-Bell uses the power of positive thinking to reach great heights

BY MONICA ELLIOTT



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Renaissance woman: Pamela McCauley-Bell is president and CEO of Tech Solutions Inc., an associate professor of industrial engineering at the University of Central Florida, and a motivational speaker. How does she juggle all her commitments? "Vitamin C and prayer," she says.

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“Our deepest fear is not that we are inadequate. Our deepest fear is that we are powerful beyond measure. It is our light, not our darkness, that most frightens us.”  
- Nelson Mandela

Looking out into the vast, starlit Oklahoma sky during childhood summers with her grandmother, anything seemed possible to Pamela McCauley-Bell. She knew success was attainable in any direction, but exactly how she would translate her intellectual gifts into greatness eluded her.

It would take several years of discovery, difficulties, and determination, but McCauley-Bell learned that it's true — anything is possible. With positive thinking, bright ideas, and hard work, she built on the promise of her dreams, and now she uses engineering to inspire others to cast off limitations on their life's pursuits.

As CEO and president of the consulting company Tech Solutions Inc., an associate professor of industrial engineering at the University of Central Florida, and a motivational speaker and writer, McCauley-Bell's accomplishments speak for themselves. Undoubtedly, someone of her stature has an extensive vocabulary, so it's surprising to learn there is one simple word she cannot say: quit.

Just ask Adedeji Badiru, Ph.D., her mentor and former doctoral advisor at the University of Oklahoma who currently chairs the industrial engineering department at the University of Tennessee. Badiru says what impresses him most about McCauley-Bell is her drive. “She's an incredibly talented young woman who is never bashful to seek out

new opportunities. She's very, very constructively aggressive in her professional development. She never gives up.”

#### The bright side of life

A proud optimist and self-starter in a world that often seems to be teeming with cynics, critics, and ne'er-do-wells, McCauley-Bell believes there are no limitations *and* no excuses. “We have it within us to do so many more great and wonderful things than we will allow ourselves to believe,” she observes. “And I really have made it one of my goals in life to help people understand all that they can do if they will but believe and work. Clearly, there's work. I love that quote that says the only place success comes before work is in the dictionary. It is work. As much accomplishment and success as I've been blessed with to this point in my life, every day I still have to put in a very high level of effort to climb the next mountain.”

Part of being successful is knowing how to manage your success, and McCauley-Bell contends that she could not have chosen a better academic discipline to study than industrial engineering to achieve this often tricky maneuver. “I'm very organized and I have good people around me, so that helps. I have great support staff within Tech Solutions, and I also have great researchers and support at the university.”

Her day begins at her Tech Solutions

office at around 8 a.m. The office is located on UCF's campus, so her Ph.D. students usually confer with her there, and she doesn't have far to go when it's time to teach her evening classes, attend committee meetings throughout the day, and address other UCF obligations. She devotes three afternoons each week to university issues.

In addition to her day jobs, McCauley-Bell usually has at least two speaking engagements each week at a school or community to talk about the joys of a career in technology.

On a regular basis, she puts in 14-hour days, often spending Saturday mornings researching and writing proposals. “But at the end of every one of those 14-hour days, I feel a sense of accomplishment,” she asserts.

McCauley-Bell's consulting company focuses primarily on chemical and biological defense work for the U.S. government, a hot-button area in the current political landscape. “The government is a great customer as long as you're patient,” she observes. “The nice thing about working for the U.S. Department of Defense, which is our primary customer, is that you feel like you're doing something that's very meaningful, particularly at a time like this.”

The company has 12 full-time team members and about 15 contract employees who analyze chemical biological defense equipment from a human engineering and reliability standpoint and train government personnel in testing evaluation.

Most of the work is classified, but McCauley-Bell can explain some generalities: “Our team members have worked on unmanned aerial vehicles that were used in Afghanistan for the war. We've also worked on chemical biodefense equipment — biological defense that's currently being used to sense biological agents such as anthrax in federal environments. I'm very excited about it. It really does feel like we're making a difference.”

#### Business savvy

“Being an entrepreneur is the ultimate adventure,” says McCauley-Bell, who founded Tech Solutions in 1999. “I realized I had an opportunity to meet some really neat people and saw that there were just some real opportunities to apply a lot of the engineering principles and knowledge that I had gained. So I wanted an environment where I could apply this, where I

did have some degree of flexibility. And a small business seemed like a great place to do that.”

Although she was gung ho, she found herself fending off naysayers and making a concerted effort to remain confident in the face of entrepreneurial horror stories. “A lot of people told me, ‘Pamela, you’ve got a Ph.D., you’re a tenured professor, why would you even bother at this point taking on another venture?’ Because I’m still alive. Life is about challenges. Why not? And to each his own — I believe we should all pursue those things that we are called to do. I really think I’m a born entrepreneur.”

Her approach to being a successful entrepreneur is based on a particular kind of vision, which she illustrates with an eyewear analogy. “I always say you have to wear trifocals as an entrepreneur, and what I mean by that is you have to have three broad levels or three large categories of vision. The first is the immediate and the upfront. You have to be prepared to see exactly what’s going on today and how to solve the immediate problems. Then you have to have mid-term vision where you’re looking out and you say, we’ve got the issues that we need to work on that are, say, four to six months down the road or even two to six months. And you’ve got to be far-sighted if your business is going to grow. You’ve got to have the strategic vision, which takes you, depending on which industry you’re in, two, five, or 10 years down the road.”

As a businesswoman, McCauley-Bell values the problem-solving skills her engineering background taught her because problems will always arise, and she believes that looking at it from the engineering vantage point means being a problem-solver on multiple levels.

“I think a lot of times from an engineering standpoint, many engineers may not do well in business because we haven’t been taught how to manage all this problem-solving. Now we can solve a problem, but when you talk about integrating it in managing the solutions and getting the right folks in there to solve the problems with you, that’s when it becomes a little different. It’s been a great learning experience.”

Eventually, McCauley-Bell realized it would be beneficial to share her experiences and gain from the experiences of other women by forming a group of entrepreneurs in the Orlando, Fla.-area. Known

as The Breakfast Club, the women meet monthly to discuss the challenges they face and the solutions they create in the business world. McCauley-Bell got the idea for the group when her husband gave her a book by Napoleon Hill titled *Think and Grow Rich* in which Hill discusses organizing a “Master Mind” group that works toward a mutual goal.

“I am a true believer in the power of association — associating with people who are like-minded, people who encourage you instead of discourage you.” McCauley-Bell is also interested in the success of others, sharing the opportunities that are available, and celebrating success. “The pie is large enough for us all to have ample servings,” she exclaims.

### Madame Crusader

Dividing her time between her family, her company, and her teaching does not keep McCauley-Bell from her other passion — crusading. Her zeal for community outreach can only be described as a crusade because of the commitment with which she pursues it.

“You would think somebody that is so professionally upwardly mobile would not have time for the community, but she actually does. And she does so many things concurrently that it’s unbelievable. She would be a role model to anyone — men or women,” asserts Badiru.

McCauley-Bell originally set out to be a doctor, but eventually she realized that her buoyant spirit could not endure constant exposure to sick people. However, she did have a strong sense of responsibility and a desire to help others, which she fulfills now through her outreach work.

Her main focus has been to encourage women and minorities to pursue careers in engineering, and in that she emphasizes industrial engineering, but her message has expanded recently with the creation of her *Winners Don’t Quit Kit*. “I get a lot more invitations to speak than I can accept. So what I’ve done is developed what I call the *Winners Don’t Quit Kit*. It’s an empowerment package.”

The kit includes a video of McCauley-Bell giving a motivational speech; an audio tape that describes how to use the kit; a work booklet outlining five steps of success; and an extensive resource list.

McCauley-Bell recognizes that it’s difficult to move past the hurdles that other

people present and that people present to themselves. “The greatest challenge for me has been overcoming other people’s perceptions and learning not to take things personally, which I have learned. Every time there’s a problem, don’t take it personally. Don’t think it’s just because you’re who you are. It’s not always because you’re a woman. It’s not always because you’re an African-American. It may just be their problem. ... When you’re positive and optimistic, you will eventually attract [positive and optimistic] people to you and the negative people will go.”

The difficulty a lot of people have, according to McCauley-Bell, is that they are reluctant to put in the work required to achieve success. She finds that people often become frustrated when they do not achieve success right away. She remarks, “One of my favorite quotes is ‘The average overnight success takes about 15 years.’ People want it yesterday, but it takes time.”

Perhaps one of the reasons McCauley-Bell is such a powerful motivator is because she has needed motivation herself. She cites finishing her bachelor’s degree as being her most satisfying career achievement because the odds were so much against her. Although she was smart and a hard worker, she faced significant challenges as a single mother who had tremendous financial obligations to meet. “Emotionally, I didn’t have the maturity or have any role models right in front of me who I could look at and say, Hey I can do this. If they did it, I can do it. So I had a lot of doubts.”

But her doubts didn’t stop her. McCauley-Bell earned a prestigious \$90,000 fellowship from the National Science Foundation that enabled her to finish her degree.

While working toward her bachelor’s degree, McCauley-Bell met her mentor and friend Howard Adams, Ph.D., a consultant and writer. At the time, Adams was executive director of GEM — the National Consortium for Graduate Degrees for Minorities in Engineering and Science — which is a nonprofit organization that promotes increasing the number of minorities who pursue engineering and science degrees. According to McCauley-Bell, he is the reason she considered going to graduate school.

Adams is very proud to have contributed to McCauley-Bell’s success. “She has a professionalism about her that is almost con-

tagious. She's a visionary. Once she hits strides, she doesn't sit around and talk about what might have been. She goes and does something."

McCauley-Bell fits in well with the movers and the shakers of the world. With Adams' encouragement, she went on to break new ground in her graduate school. "When I started at the University of Oklahoma in the graduate program, they'd

#### The assertive-minded professor

Time is something that is not necessarily on the side of this multi-tasking perfectionist. In between all the speaking engagements and corporate-world commitments, she still has courses to teach and Ph.D. students to advise.

"When I first started grad school, I never dreamed I'd be a professor. That just was-

ment at UCF and describes McCauley-Bell as a breath of fresh air. "She has a tendency to really keep focused on the big picture," says Crumpton-Young. "She tries to work with her colleagues and she tries to get everyone to get rid of what we call the small things — the things that would impede our progress. She's always saying, 'If there's a problem, let's talk about it, let's deal with it, but let's move on.' So [she's] very prob-

## Pamela MCCAULEY-BELL

**Position:** President and chief executive officer, Tech Solutions Inc., and associate professor of industrial engineering, University of Central Florida, Orlando, Fla.

**Education:** B.S. industrial engineering, M.S. industrial engineering, and Ph.D. industrial engineering, University of Oklahoma

**Family:** Husband Michael Bell is an industrial engineer and a manager at Kennedy Space Center, NASA; daughter Annette is a student at the University of New Mexico.

**Favorite book:** *The Power of Positive Thinking* by Norman Vincent Peale

**Favorite writer:** Maya Angelou

**Favorite music:** Jazz and gospel

**Favorite movies:** *The Wiz* and *Rocky*

**Favorite sport:** NBA basketball and University of Oklahoma football ("Go Sooners!")

**Favorite part of her job:** "To stand up in front of a group of students and share with them the delights of a career in technology and how they can have that."

**Mentors:** Howard Adams, Ph.D., and Adedeji Badiru, Ph.D.

**Idea of perfect happiness:** "Perfect happiness is living my dream, fulfilling my vision, and helping others fulfill theirs."

**Most admired person:** Nelson Mandela

**Trait she most deprecates in others:** Pessimism

**IE everywhere:** "I use [IE techniques] everywhere. I'm a process person. I look at how long it takes to accomplish a task and then schedule another one in. My husband is also an IE; he's doing his Ph.D. at the University of Miami now. It's so funny because we are truly IEs, and that's truly how I get so many things done. I multitask — I look at the process to get it done, look at what the bottlenecks are, try to allocate the tasks to different people when they can't be done, like house cleaning and laundry. My mom will even say at Thanksgiving dinner, 'You don't have to industrial engineer this.' But you set the food up a certain way; you make sure the little people's area is smaller so they can get to it; you put it at an appropriate height, use a little ergonomics, so they can reach it. ... I use industrial engineering all the time in my personal life."

never had a black woman in the Ph.D. and engineering program anywhere in the college, so many people were surprised. I clearly was an anomaly, but I liked what I was doing and so I continued to work. So this is proof that if you will continue to work despite the challenges, and there will be many, you have to be resilient enough to say to yourself each morning, No matter what, I'm going to get through this, and I'm even going to make it a good day. With that attitude, success is imminent."

n't what I wanted to do. I wanted to graduate and make \$40,000 and buy a BMW. It was not even planned. But after having the graduate school experience and learning of all the opportunities that you have to touch people's lives and interface with others and, in fact, increase the number of women and minorities in engineering, I decided that being a professor would just be a great career for me."

McCauley-Bell now works for one of her grad school classmates and friends, Lesia Crumpton-Young, who chairs the IE depart-

ment-solving oriented, and that's nice in the workplace because some people like to dwell on things far too long."

McCauley-Bell's students don't appear to suffer due to her hectic schedule. Robert Clafin, a lieutenant colonel in the U.S. Army who was formerly one of her Ph.D. students, remarks, "She basically captures everybody's attention and really pulls them into where she's trying to lead them. And it's really nice to be in her classroom because you feel the enthusiasm for the topic area. It's high energy. It doesn't stop after the class is over. She's

extremely approachable.”

Her specialty areas include ergonomics and artificial intelligence with an emphasis on developing knowledge-based systems and neural networks. “Being an IE is probably the ultimate blend of technology and interest in people,” McCauley-Bell says. “And while with some of my research I haven’t had an opportunity to interact with people, such as knowledge-based system

worked on human engineering, fuzzy set theory, and information security issues, all of which have very real implications in the current security-conscious world.

“Right now, it’s very important to apply a lot of the things that I was working on in that environment.” McCauley-Bell explains that those things include understanding how to design systems so that no vulnerabilities are introduced that will be prone

“That was wonderful,” observes Badiru. “Typically people shy away thinking that maybe I can’t make it, maybe I can’t do it. She does not believe in can’t, which is a very good attitude.”

Although she is proud to have been a finalist (she should be since out of about 6,000 applicants every two years, only about 25 are chosen), she still feels the sting of being a runner-up in the race into space and intends to try again in the next few years.



McCauley-Bell (right) with her daughter Annette

### Boundless ambition

So what motivates McCauley-Bell? Her overwhelming desire to make a difference in people’s lives seems to be her driving force. And she knows that she must rely on others as well as herself, focusing on her many role models and other positive and successful people.

McCauley-Bell’s demanding lifestyle requires her to stay on top of things. “It means long hours; it means being highly organized and being efficient. I said I was born to be an entrepreneur, but I was *born* to be an IE. I love process and efficiency.”

Recently, about 100 members of McCauley-Bell’s family held a celebration of her success, but it wasn’t meant to mark the end of her career because she has no intention of slowing down. Her aspirations include everything she can attain. “I want to build a billion-dollar business. I intend to become a full professor. And I would like to inspire as many people as I can to have careers in technology and to be all that they can be,” says McCauley-Bell.

Her accolades are already piling up, including the Summit Award for women making professional and community contributions in Central Florida, the 2001 Millennium Woman of the Year Award from the Millennium Woman Foundation, the Saturn/Glamour Award recognizing outstanding women, and the 1999 Outstanding Woman of Color in Technology: Educational Leadership Award.

She lives what she preaches, and she has no regrets. “Every morning when I get up, I’m very happy that I’ve made the choices that I have that have led me to this place. Now that doesn’t mean that I’ve made every decision correctly, but I’m very, very thankful to have gotten to this point in terms of my professional life.”

development and building neural networks — what you’re doing, of course, in a case like that is mimicking what a person would do, so it really does blend very nicely if you have a love of technical interest and if you still are interested in the human aspect of design.”

McCauley-Bell’s interest in artificial intelligence led her to a brief assignment in the aeronautics and astronautics department at the Massachusetts Institute of Technology. Within the department’s Human and Automation Division, she

to human error. According to McCauley-Bell, these system-induced errors have been a frequent cause of concern in information security. “When you think about the number of passwords you have and when you think about the number of user IDs you have, that’s a very simple example of ... human impact information security,” she notes.

McCauley-Bell’s association with astronautics is not limited to her stint at MIT. She was a finalist with the NASA Space Shuttle Astronaut Program in 1994.