

The Future Is Now: Pascale Nini of Immervision On How Their Technological Innovation Will Shake Up The Tech Scene

An Interview With Fotis Georgiadis



Fotis Georgiadis

Jul 28 · 10 min read



Don't put limits on yourself. Creating artificial ceilings can be one of the greatest stumbling blocks to innovation. To be an effective leader, you must often think outside of the realm of possibility, to find new ways to innovate, and come up with solutions to problems that have not yet been solved. This has enabled us to evolve from our R&D roots to become the largest, independent advanced vision company in the world. We have over 26 patents, and have partnered with some of the biggest technology brands — including Qualcomm, Motorola, Intel and many others.

As *a part of our series about cutting-edge technological breakthroughs I had the pleasure of interviewing Pascale Nini.*

Pascale Nini is the CEO of Immervision, the pioneer and leader in advanced vision systems. Immervision unlocks the ability for machines to perceive the world around them, by strategically partnering with companies to develop, integrate and license Immervision's wide-angle optical design, image processing and sensor fusion technologies. Twenty years ago, Pascale seized the emerging trend in wide-angle vision, and today Immervision's technology is used in smartphones, automotives, robotics, and other commercial and consumer products worldwide.

Thank you so much for doing this with us! Can you tell us a story about what brought you to this specific career path?

Absolutely. I began my career in mathematics and clinical psychology while in France. While I thoroughly enjoyed working in this field, I had a strong desire to become an entrepreneur. My father was an entrepreneur, and it led to me starting a company, which I eventually sold.

After this experience, my next goal was to find an opportunity in the tech industry, which was a sector that I was drawn towards. I met the initial founders of Immervision in 2000, and I found the pioneering idea of the company — which was to design wide-angle camera lenses that could be used in virtually any application and in any industry — so new and compelling that I became their first investor, using the money I'd made selling my own company. Over time, I continued to advise and support them, and eventually became the CEO of Immervision in 2003, based in Quebec, Canada.

Today, I'm proud to say that Immervision has continued to lead the industry through its unparalleled expertise in advanced vision systems,

which we've cultivated over the past 20 years. We can develop, integrate and license our technologies, helping our partners and customers to accelerate innovations in machine vision. We are the largest, independent advanced vision system company in the world.

Can you share the most interesting story that happened to you since you began your career?

When I initially invested in Immervision, I recognized that the company was on the cutting-edge of what was possible in advanced vision systems, but looking back, I didn't realize the full extent of how advanced Immervision was compared to anything else in the market. Rather, over the years, the tech industry has caught up to now being able to truly take advantage of machine vision and perception.

One example of where we were ahead of the curve was when we conducted virtual, 360-degree demos of our technology, using military-grade headsets. At the time these headsets were incredibly clunky, which affected the user experience. Fast forward to many years later, and Facebook announced that it had acquired virtual reality (VR) headset company Oculus, in a \$2 billion deal. Today, nearly 10,000 people are working on augmented or virtual reality devices at Facebook — nearly one-fifth of its total global workforce! It's shown how far we've come from VR being viewed as a fad to one that is continuing to see more excitement and traction for both consumers and businesses. VR is just one of many technologies that uses advanced vision systems to give devices true machine perception.

Can you tell us about the cutting edge technological breakthroughs that you are working on? How do you think that will help people?

We've established the Immervision InnovationLab that includes multidisciplinary and highly-experienced scientists, optical designers and engineers who are steadfastly focused on integrating all aspects of a vision system together, so that we can design solutions for any application and environment.

Our work is focused on continuing to push the boundaries of what's possible, by increasing the functionalities of our advanced vision systems while reducing the size of the optical designs themselves. This means that we're constantly breaking through with new vision systems that can fit into increasingly smaller devices (like smartphones and other consumer electronics). We're also working with customers in the automotive/mobility sector, to create systems that can help a vehicle navigate and make lightning-speed decisions based on what they're seeing on the road.

At Immervision, we believe that we're at a major turning point for machine autonomy. Wide-angle optical designs and imaging processing technologies play a central role in giving machines the situational awareness to have human-like perception to make decisions. It's an exciting time to be working in this field, knowing we're barely scratching the surface of our technology's potential.

How do you think this might change the world?

Over the last 20 years, I've seen that incorporating vision into machines has evolved from being on the periphery to one that is central to the next generation of devices. The ability for machines to master vision is seen as the next big technological breakthrough, touted as a once-in-a-generation disruption, and its applications in commercial and consumer applications are virtually limitless. Enabling machines to do automated tasks with a

high level of security and human comfort will ultimately provide the opportunity for us to focus on new goals and aspirations.

For example, recently we unveiled JOYCE , a humanoid robot that is equipped with ultra wide-angle cameras, which can be used by developers, universities and technology companies to solve computer vision challenges. By incorporating our advanced vision systems into a human-like device, JOYCE can be used in a variety of ways — from helping patients who need emergency care in hospitals, to other situations that require contextual awareness.

Keeping “Black Mirror” in mind, can you see any potential drawbacks about this technology that people should think more deeply about?

Many technologies can be viewed as having potential drawbacks, particularly when they are at the cutting edge. At Immervision, our view is that we provide solutions that can advance machines — and humanity — forward in a positive direction. By providing machines with “deep-seeing” capabilities — whether it’s for drones to capture images in hard-to-reach places overhead, space rovers to travel the surface of new planets, or driverless vehicles to navigate users to safety — we’re just scratching the surface with our technology.

Was there a “tipping point” that led you to this breakthrough? Can you tell us that story?

The breakthrough moment was when Immervision shifted its focus away from pure R&D to licensing and commercializing our technology. For a long time, we were primarily focused on offering wide-angle optics and image processing. Because of this expertise, we were able to create complete advanced vision systems for a variety of applications and industries.

Today, the market has caught up, and machine vision is recognized as a huge, untapped opportunity — vision data is expected to be a major driver of Industry 4.0, which is expected to deliver between \$1.2 trillion to \$3.7 trillion in potential value by 2025 worldwide. I'm excited to see what the next 20 years holds for machine vision and perception.

What do you need to lead this technology to widespread adoption?

I think we're on the right track to reach widespread adoption, seeing all the signals in the market. One of our top priorities is to continue to cultivate and expand our team of talented, multidisciplinary scientists, optical designers and engineers who strategically partner with our clients (we've partnered with over 133 companies to date, including Qualcomm, CEVA, Motorola and many others) to work from high-level applications requirements to set the specs for advanced vision systems in devices. Additionally, through our commitment to integrating the traditionally siloed areas of computer vision, AI and sensor data among companies, we see our role in bringing our end-to-end expertise to help accelerate machine vision innovation to power a range of devices.

What have you been doing to publicize this idea? Have you been using any innovative marketing strategies?

Our launch of JOYCE has been a major milestone to highlight how the computer vision community can work together to help machines gain human-like perception. In the future, we plan to do live streaming videos with JOYCE on social media networks, to give viewers the opportunity to see the “behind-the-scenes” of this technology in real-time.

Additionally, we've also promoted our innovative work with brands — from Intel, CEVA, the U.S. Department of Defense and more. For example, with the U.S. Department of Defense, we partnered with them to develop

computer vision wide-angle systems for commercial and defense drones, which can operate in low-light settings.

None of us are able to achieve success without some help along the way. Is there a particular person who you are grateful towards who helped get you to where you are? Can you share a story about that?

I have had several mentors throughout my life. My father has been a huge inspiration for me — he taught me to not create an artificial ceiling to my ambition, and to also impart that philosophy to those I worked with. He taught me to strive to reach my goals — no matter how lofty these may seem — and to never give up. In business, the path is never straight or easy, so perseverance is key.

How have you used your success to bring goodness to the world?

I've been honored to be a mentor to aspiring entrepreneurs throughout my career. I've been very involved with a number of organizations devoted to women entrepreneurship, and giving them the tools and insights to become successful leaders. I've also worked with entrepreneurs in Quebec to help them hone their investment strategies in the early stages of their business. I enjoy working with founders at this stage and seeing how their companies flourish from a kernel of an idea to one that has a comprehensive plan, go-to-market strategy and the elements to grow and succeed.

What are your “5 Things I Wish Someone Told Me Before I Started” and why. (Please share a story or example for each.)

1. **Don't put limits on yourself.** Creating artificial ceilings can be one of the greatest stumbling blocks to innovation. To be an effective leader, you must often think outside of the realm of possibility, to find new

ways to innovate, and come up with solutions to problems that have not yet been solved. This has enabled us to evolve from our R&D roots to become the largest, independent advanced vision company in the world. We have over 26 patents, and have partnered with some of the biggest technology brands — including Qualcomm, Motorola, Intel and many others.

2. **The road to entrepreneurship is neither linear nor peaceful.** The journey for an entrepreneur feels less like walking down a straight road, and more like hiking an obstacle-laden mountain. To succeed as an entrepreneur, you must adapt constantly to survive and grow. The constant changes in the market, industry trends and macroeconomic trends means that there will also be bumps in the road — particularly as technology is so fast-paced — but this also poses new opportunities along the way.
3. **Specialize in solutions.** Being an entrepreneur and a CEO is not easy. Often, you'll find that you are not only presented with new challenges, and may have to walk down uncharted paths to arrive at the best solution. At Immervision, our partners and customers frequently ask us to design, develop and integrate vision systems that have never been done before — and that means that we're always pushing the boundaries of what's possible.
4. **Sometimes you need to trust your instincts.** Being a CEO can sometimes be an isolating experience, especially when you need to make difficult executive decisions. Over the years, I've learned to amass the right team, resources and insights that have helped propel and expand the business, enabling us to be in millions of vision-based consumer and commercial devices around the world.

5. Surround yourself with the right team. It may sound cliché, but having the right team to complement and challenge you is critical for your growth, and the growth of the company. At Immervision, I'm honored to have a senior leadership team who have been working alongside me for well over a decade, and a successful board of advisors. Whether it's looking at expanding into a new industry, innovating our technology or any other strategic priority, our team is focused on tackling every opportunity.

You are a person of great influence. If you could inspire a movement that would bring the most amount of good to the most amount of people, what would that be? You never know what your idea can trigger. :-)

I truly believe that JOYCE is the start of a movement to bring the computer vision community together to give machines vision and perception. We're still scratching the surface of what the possibilities could be for humanoid robots to be in industries as varied as security, medical, automotives, and much more.

Can you please give us your favorite "Life Lesson Quote"? Can you share how that was relevant to you in your life?

"Never give up" is a phrase that I have instilled in my company. It is an attitude that I aim to embody, to set an example for my entire team. Regardless of your role, if you are able to think outside of the box and turn a challenge into an opportunity, then it can help put you on the path to success.

Some very well known VCs read this column. If you had 60 seconds to make a pitch to a VC, what would you say? He or she might just see this if we tag them :-)

At Immervision, we specialize in bringing eyes — vision and perception — to machines. We are the only company in the world that understands advanced vision systems through the entire camera pipeline. This means that we offer comprehensive expertise in optical design, image processing, and sensor fusion technologies to accelerate machine vision.

Today, computer vision is still viewed as a huge, untapped opportunity, with the total addressable market expected to reach US\$48.32 billion by 2023, at a compound annual growth rate of 31.65%. It's abundantly clear that the industry is rapidly moving towards giving machines real-time vision and perception, and as the first to pioneer this movement, we are poised to equip the next generation of devices with this innovation.

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