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Short resume, updated 1/2024.

A detailed [list of projects and technical achievements](#) is available upon request.

I like **solving hard problems requiring innovation**, helping teams navigate uncharted territories. I believe the hardest problems are ones that marry people, products, and technology, not just "academic" novelty.

Highlights: Built teams and led groups, shipped a dozen "AAA" videogames, advanced the state of the art of real-time rendering (especially PBR), presented novel techniques, organized conferences, wrote papers and books. Worked for startups, indie studios, and large corporations.

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My main field of application is **Computer Graphics**: I am an expert both in its **theoretical aspects** as well as the **low-level optimization** of CPU and GPU hardware. I also have **wide interests** in computer science, which allows me to bring a multi-disciplinary approach to problem solving.

I am an experienced **Technical Director** and I wore many hats in my career: from production **engineering, to research, to management**. I like hands-on programming while at the same time leading groups big enough to tackle significant problems.

I take a **humanistic** approach to technology: innovation is valuable only as it delivers value to people, either externally (customers) or internally (workflows). I'm allergic to hype cycles and cargo-cult engineering.

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My career is rooted in the **videogame industry**. I have been credited on twelve shipped "AAA" titles. As a rendering engineer I've helped teams reach their goals by advancing the state of the art and working side by side with artists and producers. Working in gaming taught me the importance of risk mitigation and prototyping to be able to work around uncertainties under tight deadlines, and the importance of people and workflows.

I worked both as an engine programmer, developing new in-house 3D engines for future console generations, and as a graphics specialist, focusing on visuals and workflows. Of the two, I consider myself strongest in the latter: I thrive in the collaboration between **creativity and technology**, and in the marriage between theory and efficient execution on hardware.

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At **Activision/Blizzard**, my last stint in AAA gaming, I was a **senior technical director** in "central technology", helping multiple studios work better together, focusing on graphics research across products, and maintaining the company's external relationships (first-party, third-party, academia).

In 2019 I joined **Roblox** (then, a startup) as a **director of engineering** to build their graphics group; I wanted to find a novel challenge, leveraging my core expertise in an entirely new field: Roblox is a "long-term" platform, quite different from the deadline-driven, risk-averse world of AAA games.

My role has been to set the **vision** for the group, rather than focusing only on tactical efforts. As Roblox is a technology platform for creatives, does not create first-party content, leading one of the major engine groups also entailed **product design**. For example: what are Roblox worlds "made of"? The answer to this took more than a year, from design to evaluating acquisitions, to establishing new teams.

At Roblox, I grew the rendering group from three engineers to three teams with twenty engineers in total, plus technical art, automation, and product resources. I helped the

company establish many of the practices we still use today, from hiring standards to product and project guidelines.

In 2022 I moved from rendering to the wider "simulation" group (my former teams plus physics, geometry, and interactivity) and as a senior technical director, to help Roblox navigate architectural changes needed for the next decades of scale. Currently, I am establishing a group in charge of the **overall architecture** of the Roblox engine, going from a relatively standard client-server system to a fully distributed simulation.

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In all the companies I worked with, I have **delivered significant R&D work**, some of which has been presented in different venues and publications (among others: Siggraph, GDC, Digital Dragons, ShaderX).

My **other fields of technical expertise** are: machine learning and numerical algorithms, programming languages, algorithms and data structures, data visualization, computational geometry, animation, and low-level performance optimization.

I am an advocate for improvements in workflows, productivity: from better tools and metrics to collaboration between creative and technical departments. I'm passionate about knowledge-sharing, **mentoring**, and helping to recruit the best possible people.

Outside my professional obligations, I contribute to my field by helping our **community**. I'm one of the authors of the fourth edition of "**Real-Time Rendering**", I helped Andrew Glassner with his "Deep Learning: From Basics to Practice" book and I am an editor for the "Journal of Computer Graphic Tool" and of "Ray Tracing Gems II". I served as general and paper chair for the ACM I3D Symposium, helped on the advisory board for graphics vendors (Intel, Microsoft), and co-founded the "**Rendering Architecture Engine Conference**". For a few years I also took a teaching position at the Vancouver Film School and I sometimes write, mostly about computer graphics, on c0de517e.com.

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Roblox (2019 to now):

I currently am a Senior Technical Director on the Roblox Engine group, in charge of the engine architecture. My main tasks today are:

- Establishing the design of our new distributed simulation engine, to scale to thousands of concurrent players.
- Reviewing major technical plans for all the teams.
- Help teams coordinate as the company keeps growing (from circa 300 employees when I joined four years ago, to the current count of around 2500) - fight organizational entropy
- Establish relevant technical principles and guidelines.
- Hands-on research and prototyping.

Previously at Roblox, I have served as an Engineering Director, establishing our rendering teams and overall organization.

Previously:

Milestone (2006-2007), Electronic Arts (2007-2010), Relic (2010-2012), Capcom Vancouver (2012-2013, after a consulting contract back at Electronic Arts), Activision Central Tech (2013-2019). Before gaming, I worked briefly in industrial automation.

I graduated with a master's in Computer Science, honors cum laude from the University of Salerno (2005), and entered their Ph.D. program. Was a demoscener in my youth and still enjoy computer arts, digital fabrication, and photography.

