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Resume (short version). Updated as of 5/2023. Detailed list of projects and technical innovations available on request.

I am an **experienced technical director**, specialized in **computer graphics** (real-time rendering) but with a wide range of interests in Computer Science.

I learned, through my career spanning different roles and companies, that my main drive is **creative problem solving**, the challenge of helping teams navigate uncharted territories. This is remained constant as I moved from engineering to research, to leadership.

I take a **humanistic** approach to technology, recognizing that innovation is valuable only as and if it delivers value to people, either externally (customers) or internally (workflows).

My career is rooted in the **videogame industry**, I have been credited on twelve shipped "AAA" titles to date.

As a rendering engineer on production teams, I've helped titles reach their goals with novel techniques, **advancing the state of the art** and working side by side with artists and producers. Risk planning, early prototyping, workflow consideration are among the skills I honed in production, as well as of course principal-level engineering contributions.

In production I worked both as an engine specialist, developing in-house engines around new hardware generations, and as graphics specialist, focusing on visuals and workflows. Of the two, I consider myself strongest in the latter, especially as I thrive in the collaboration between art and technology.

At Activision, my last job thus far in AAA gaming, I was a technical director on their central technology team, still focusing on graphics research but across products, in a self-directed and long-term fashion, helping multiple studios work better together.

I've done significant R&D work for all the companies I've been with, published and presented novel techniques in different venues (among others: Siggraph, GDC, Digital Dragons). Exploratory programming and data analysis, together with a strong domain knowledge, are among my most used research tools.

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

I am an advocate for improvements in workflows, productivity and team dynamics: 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.

In **2019 I joined Roblox** (then still a private startup) as a director of engineering **to build and lead their graphics group**. I wanted to find new challenges where I could still leverage my expertise but apply it to entirely new fields.

Roblox is a long-term focused platform, which makes it radically different from the deadline heavy production of AAA videogames. A significant part of my role in rendering has been to set the vision for the group, rather than focusing on tactical research efforts. As Roblox provides a platform for developers, and does not create content, leading one of the major engine groups has also a direct influence on the end product - much more so than working on entertainment productions.

I grew the rendering group to three teams with twenty rendering engineers in total, plus technical art, automation and product resources. In the process, I helped the company establish many of the practices we still use to this day, from hiring standards to product and project guidelines.

Recently **(2022)** I've transitioned out of my role as a manager back to a senior technical director position, to help the wider simulation group that rendering is part of, as Roblox is starting to invest in bigger, structural changes to its systems in order to prepare for the next decade plus of product growth.
Currently I am establishing a group in charge of the **overall architecture** of the Roblox engine, transitioning from a relatively standard client-server system, to a fully distributed simulation.

Outside my professional obligations, I contribute to the field of computer hraphics by helping its **community**. I'm one of the authors of the fourth edition of "Real-Time Rendering", have helped Andrew Glassner on his "Deep Learning: From Basics to Practice" book, and I am an editor for the "Journal of Computer Graphic Tool".
I served as general and paper chair for the ACM I3D Symposium, helped on the advisory board for a graphics vendors (Intel, Microsoft), co-founded the "Rendering Architecture Engine Conference", which was also a Siggraph course in 2021, but today is fully independent.
For a few years, I also took a teaching position (in my "spare time") at the Vancouver Film School and I sometimes write, mostly about computer graphics, on c0de517e.blogspot.com.

At Roblox (2019 to today):

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

Past:

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 in Computer Science, honours cum laude from the University of Salerno (2005), and entered their PhD program.

Was a demoscener in my youth and still enjoy computer arts, digital fabrication, and photography.