OLIVIER SOARES

Senior Engineering Manager

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SUMMARY

Leading a group of researchers and engineers developing AI/ML algorithms.
Strong analytical and creative skills, working on large scale optimization-based problems, particularly using gradient-based optimization and high performance ML systems.

EDUCATION

M.Sc in Computational and Mathematical Engineering, *École Supérieure d'Ingénieurs de Luminy.*
B.Sc in Mathematics, *Classe préparatoire, Mathématiques spéciales.*

EXPERIENCE

Senior Engineering Manager Apple Inc, Cupertino, CA May 2017 - Present

Leading a team of AI/ML researchers and engineers to develop algorithms such as Persona, Eyesight (*Apple Vision Pro*) and Personalized Spatial Audio (*iPhone*).
Hands on development from data requirement, large scale data reconstruction, architecture design, training and integration. Worked with various cross-functional teams: design, data, research partners, software / apps and the leadership team.
Developed these algorithms using techniques such as neural rendering, implicit learning, generative modeling, adversarial training, auto-encoders, transformers and diffusion models.
Created and led a research incubation team developing foundation models used in all algorithms.

Engineering Lead Magic Leap, Sunnyvale, CA Jan 2016 - April 2017

Developed various Computer Vision projects in the Advanced Technologies Research group using deep neutral networks such as lighting estimation and scene understanding for *Magic Leap One.*

Software Engineer Pixar Animation Studios, Emeryville, CA Nov 2009 - Dec 2015

Created a novel flesh and skin simulator based on Stanford *Physbam* library for *Finding Dory.*
Developed a vegetation physically-based simulator and architected the simulation pipeline for *The Good Dinosaur* that efficiently simulates large trees, plants and grass using parallel computing, low-memory footprint and a semi-implicit optimizer to solve the various differential equations.
Collaborated in developing a proprietary hair physically-based simulator system for *Brave.*
Helped build the simulation pipeline foundations for Pixar proprietary animation system *Presto.*

Software Engineer Weta Digital, Wellington, NZ Oct 2008 - Oct 2009

Developed a numerical optimization algorithm to render, simulate and destroy vegetation for *Avatar*.
Implemented a fast ray-tracing voxel acceleration system to generate rain-drops and grow vegetation on characters.
Wrote an algorithm for re-advecting fluid simulations to combine, retime and blend fire, smoke and water grid-based simulations.

Software Engineer Framestore, London, UK March 2006 - Sept 2008

Developed a hair rendering program for *The Tale of Despereaux* with stochastic simplification, adaptive level of details and fast geometry culling.
Wrote a crowd simulator for *Australia* and a hair physically-based simulator for *The Chronicles of Narnia: Prince Caspian*, *Harry Potter and the Order of the Phoenix* and *Underdog*.

SKILLS

C/C++, Python, Numpy, Tensorflow, PyTorch, JAX, Eigen, OpenCV, Unix.

PATENTS

US 11830182	Machine learning-based blood flow tracking.
US 11727724	Emotion detection.
US 20220322024	Audio system and method of determining audio filter based on device position.
US 20210192839	Inferred Shading.
US 11769305	Method and devices for presenting and manipulating conditionally dependent synthesized reality content threads.
US 20210027164	Objective-effectuators in synthesized reality settings.
US 20200364568	Generating objectives for objective-effectuators in synthesized reality settings.
US 9070221	Animation engine with hair animation using attenuation fields.
US 9449417	Artistic simulation of curly hair.