

Procedural People in Pixar's Presto: New Workflows for Interactive Crowds

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Figure 1: Presto Crowd Framework (Pcf) example in Pixar's Presto

ABSTRACT

Pixar's Presto Crowd Framework (Pcf) has taken interactive crowd scalability to new heights by harnessing the power of Presto's scalable execution framework for procedurally rigged crowds. Pcf is a vectorized and highly parallelized crowd system that represents an entire crowd as an aggregate model. Prior to Pcf, Presto crowds used a model per agent, via the Mf (model framework), and only scaled to around thousand agents, even with fast GPU based linear blend skinning. Pcf CrowdPrims by contrast can scale to tens and even hundreds of thousands of agents using the same underlying data while maintaining interactive frame rates. Pcf was also designed from the ground up to import from and export to USD to make pipeline deployment seamless. Pcf Crowd Prims use procedural

implementations for crowd techniques that are traditionally simulated, like Finite State Machines, making the results deterministic and pipeline friendly. Taken together, our Real-Time Live Demo will prove to the audience that they do not need to settle for the long execution times and history dependent nature of simulated crowds, and that with sufficiently a vectorized/parallelized framework, even stadium sized crowds can be generated/choreographed interactively.

CCS CONCEPTS

• Computing methodologies → Procedural animation.

KEYWORDS

crowd simulation, procedural animation

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