



GROWTH MARKETS

China

While other Eastern territories thrive on outsourcing, China shines on all fronts, housing its own market-leading studios

Identifying growth markets for the coming year isn't an easy task given the overall economic conditions prevailing in the architectural visualisation sector. Nevertheless, China's output clearly marks it out for special attention. With a number of well-respected institutions training artists to a remarkably high level, strong local and external investment, and competitive pricing, China has been developing into a major international player at a remarkable rate - not only as a centre for outsourcing, but also as home to a number of well-regarded design studios such as Shanghai's multi-award-winning BHAA, as well as satellite offices for studios such as Spine3d. And while the country as a whole may be a relative latecomer to the technology game, that also seems to be working to its advantage. As Guy Middleton, managing director of H4 Group - an international firm with offices in Nanjing - says, "The advantage of a developing country is that the infrastructure is not 50 years old."

FACTFILE

KEY STUDIOS

BHAA, Crystal CG, Dayluxe Gallery, H4 Group, Screampoint, Sunup CG, Spine3d

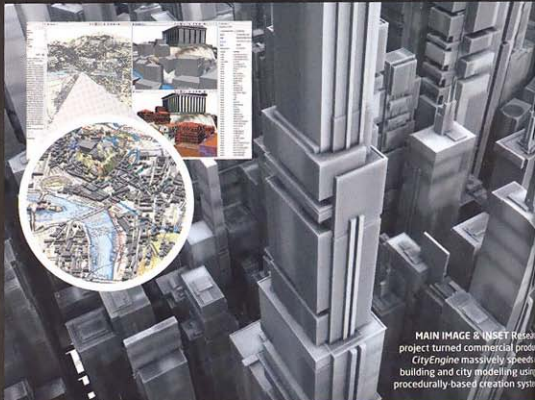
APPROXIMATE SIZE OF INDUSTRY

Unknown

TRIVIA

A study by Hoover's in 2007 placed Crystal CG on a par with US studio Neoscape in terms of total revenue, at \$7.1 million. The firm employs over 1,500 people across all its divisions (including entertainment and other presentation services)

For a fuller list of technologies to watch during 2009, including developments in GI, GPGPU coding, and new BDRF workflows, visit 3D World online tinyurl.com/5oxr2t



MAIN IMAGE & INSET: Reborn project turned commercial product. CityEngine massively speeds building and city modelling using procedurally-based creation systems

KILLER TECHNOLOGIES

CityEngine

Capable of generating the geometry for an entire city in hours, this new procedural modelling technology wowed delegates at Siggraph

Coming from a developer named Procedural, I assume this has something to do with procedural modelling? You betcha. *CityEngine* has been designed to massively simplify and speed up large-scale content creation, using procedural techniques to create 3D buildings and entire cities.

But isn't this a new, untested company: one lacking any architectural pedigree? Procedural may be new, but the product is the brainchild of Pascal Mueller, a former PhD researcher at the Computer Vision Laboratory of ETH Zurich with more than 25 papers to his name and several 3D design credits.

It all sounds horribly complex to me...

And yet it's not. Users define aesthetic and architectural rules using a 'shape grammar' system to create parametric models in an implicit way. The software takes care of all the hard work.

But doesn't a system for defining layouts procedurally preclude using it to mimic real urban landscapes? Not at all. In fact it's now even possible to import OpenStreetMap datasets, to quickly create replicas of real cities.

And does it really work?

The attendees wowed at this year's Siggraph by the presentation of Rome Reborn, a project developed in collaboration with the University of Virginia, certainly think so.

Okay, I'm convinced. Tell me more. Suited for both high and low-poly world, *CityEngine* has potential both for populating scenes - filling in city detail to support hero building work, for example - and for generating pre-viz models and animations. Either can be created in a matter of hours or days, rather than weeks and months.

And what about pipeline integration? *CityEngine* has that covered, too, with support for the FBX, OBJ, Collada, RIB and MI formats, spanning everything from 3ds Max to RenderMan.

City Engine updated

SOFTWARE Procedural adds OpenStreetMap import to its city-generation tool, chosen as one of our tips for 2009

Procedural has added support for the OpenStreetMap format to its *CityEngine* software. The product, selected in this issue's lead feature as the architectural visualisation technology to watch in 2009, generates detailed models of entire cities procedurally, using a set of 'shape grammar' rules.

The new importer will give users the ability to recreate any city in the world, avoiding the high costs of official GIS data or the need to use photogrammetric models.

"Architects and planners often need to visualise a design embedded in an existing urban environment," said Procedural CEO Pascal Mueller. "[Users of *CityEngine*] can reconstruct existing surroundings very efficiently at low costs. I hope that the product helps small to mid-sized studios to create visualisations as impressive as those from the large studios."

The importer works by visiting OpenStreetMap.org website and selecting the street network required for import. The user

can then use *CityEngine's* procedural modelling capabilities to generate 3D models of the buildings and streets required.

"The parameters of the buildings can be adjusted and regenerated," says Mueller. "When you're happy with the model, you can export it to the 3D application of your choice."

This range of export options has been expanded in the new update, with exporters for *RenderMan* and *Google Earth* joining existing formats such as OBJ, FBX and MI.

The update also includes new parameter modifiers such as building height or age. *CityEngine* is available now, price \$4,950.

For our other predictions for the architectural visualisation industry in 2009, check out our lead feature, which starts on page 36.

www.procedural.com



● ABOVE, BELOW Procedural city-generation software *CityEngine* now offers an importer for OpenStreetMap.org data, enabling users to recreate any city in the world for export in standard 3D file formats

