



Current: Livestream City & Participatory Urban Archive

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The means by which we appraise, preserve and describe our built environment has changed radically since the invention of machines that are able to archive and comprehend large datasets. Digital tools are reconfiguring the notion of archive by democratising the production and distribution of information. 'Current' is a distributed pipeline that enables its users to produce, broadcast and archive data collectively in real-time.

The speculative film 'Current', is a 12-min prototype of utilising and integrating distributed technologies in volumetric reconstruction and urban archiving. 'Current' speculates on the convergence of 4 core ideas into a digital media infrastructure that opens up disciplinary and methodological avenues in architectural archive: livestream, volumetric navigation, AI image processing, and algorithmic personalisation. 'Current' experimented first hand with a range of distributive technologies that are readily available to any users, from lower-end sensors to open source AI and broadcasting tools. Livestreams often consist of information about urban routines and city landscapes, which reconfigure ways in which moments of architecture and our built environment is being preserved.

In the contemporary contestations of algorithmically recommended content, the screen time of scrolling between livestreams has become a form of new cinema. 'Current' experimented with various AI image processing technologies and volumetric environment reconstruction techniques to depict a future where every past account has been archived into an endless stream. History, from Latin 'historia', means the art of narrating past accounts as stories. What will be the future of our urban environment if every single event is archived in real time to such accuracy that there is no room for his-story? This implies an economy of values, that has potential in multiple streams beyond social media, as the content deep learns from itself.

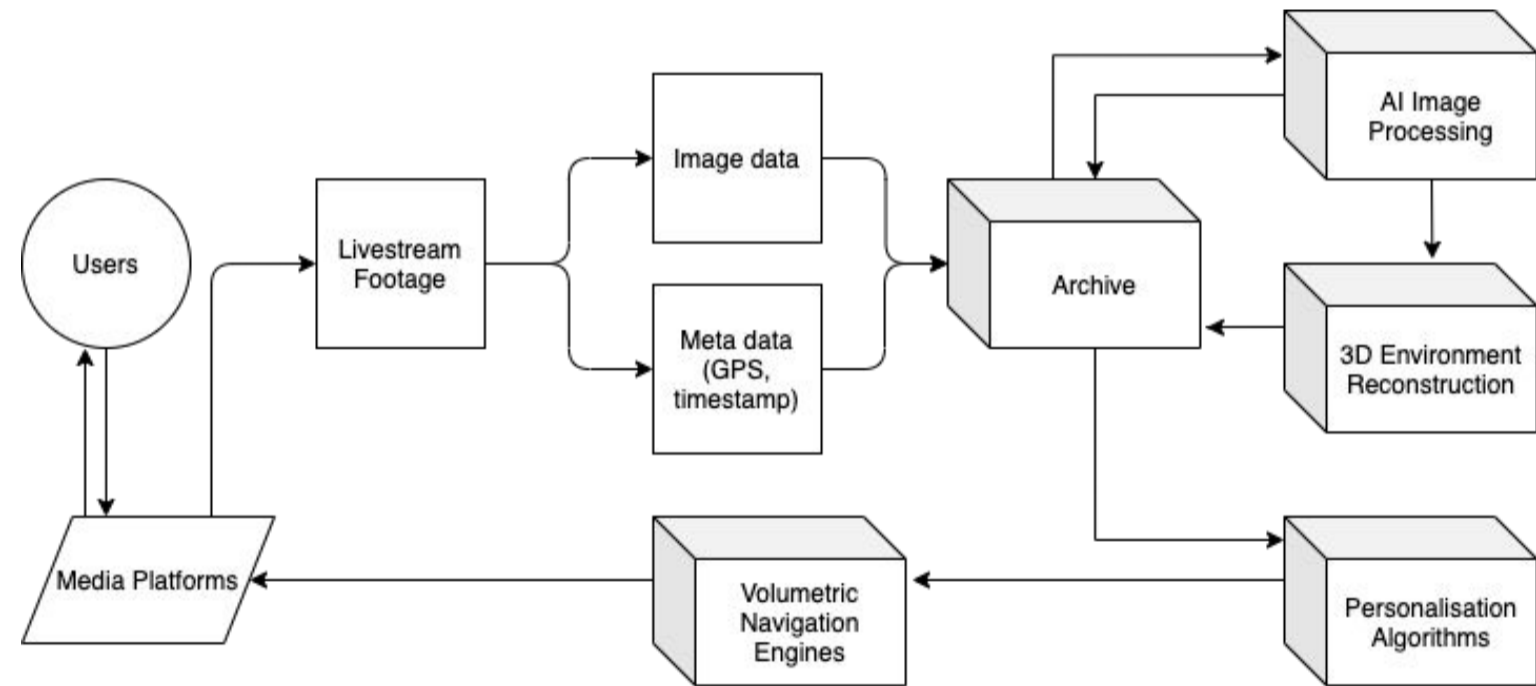


Fig 1. Flow chart of the production pipeline with constituent components that generated a 12-minutes prototype of the concept 'collaborative vision' - 'Current'.

Output

The production pipeline have been tested to produce a 12-min prototype of environment reconstruction. The prototype can be accessed:

www.current.cam

Below are screenshots from the output of 'Current' alongside reconstructions from related works. Resolution of mesh and texture mapping from 'Current' is relatively low in comparison, but the cost of production is near zero and all technologies used are ready at hand to any individual.

In the coming year, 'Current' intends to update the production pipeline with the latest open source technologies to improve on the quality of reconstruction for archiving urban environment and events. It also aims at surveying same sites every other year to archive the changes over time.



Fig 2. Current's volumetric reconstruction shows peculiar aesthetic of voids and shadows around the scene that discloses information of the relative position of the sensor.



Fig 3. Forensic Architecture matches 2D image data from social media on a 3D city model to estimate the position of the massive Israeli shelling in the 2014 Gaza War.

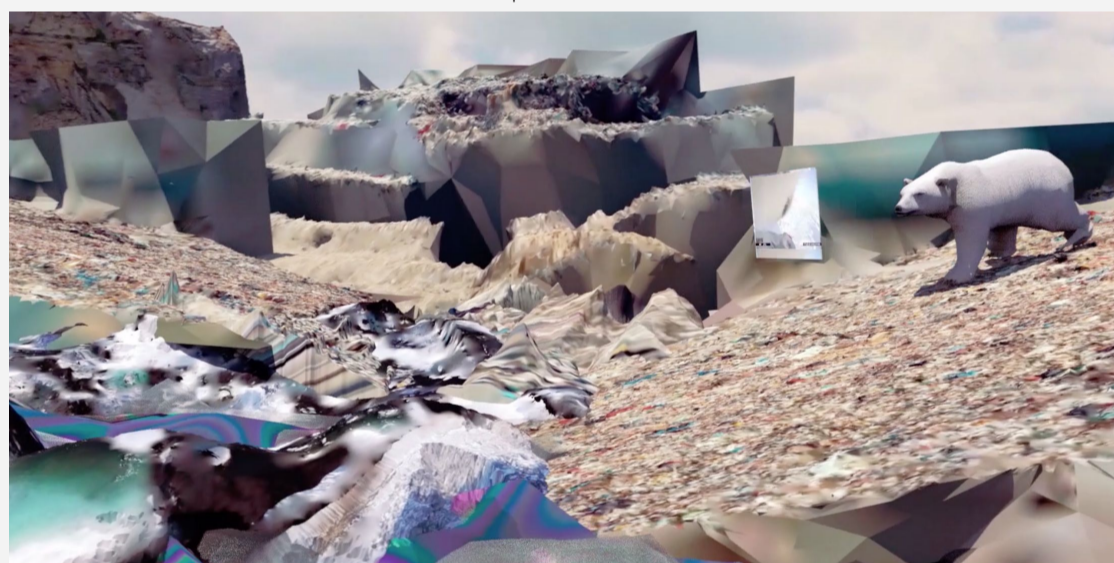


Fig 4. Using motion tracking and bear cam data, 'Current' approximated and restored the original path took by a polar bear in a 3D reconstruction of its surrounding environment.



Fig 5. NASA uses triangulation to approximate scene depth and the path took by its Curiosity Rover on Mars, and visualised as 2D panoramas.



Fig 6. An overlay of reconstruction on original livestream data in 'Current'.



Fig 7. Intel® True View large scale sports event reconstruction.



Fig 11. 'Current' experiments on animating point cloud reconstruction models, where users navigate themselves from world2world, as opposed to frame2frame.



Fig 10. 'Current' reconstruction without deep learning to fill in data voids on city texture mapping.



Fig 8. 'Current' applied texture mapping combining techniques of crowdsourced pix2pix AI algorithm and reconstructed models from Tokyo city livestream.



Fig 9. Nvidia Pix2pixHD texture mapping using AI algorithm Generative Adversarial Networks (GANs).

