Rome Reborn is an international initiative based at the Institute for Advanced Technology in the Humanities (IATH) at the University of Virginia. It aims to create 3D urban models of the development of ancient Rome from late Bronze Age settlements (ca. 1,000 B.C.) through the drastic depopulation of the city in the early Middle Ages (ca. A.D. 550). Institutional partners include the Politecnico di Milano, UCLA, the Université de Caen, and the Ausonius Institute at the Université de Bordeaux-III. Commercial rights to Rome Reborn have been exclusively licensed to Past Perfect Productions s.r.l., a corporation based in Rome, Italy.

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Rome Reborn 1.0. The first result of the project, finished in 2007, is called Rome Reborn 1.0, a digital model of the city as it might have appeared at the height of its urban development in the time of Constantine the Great in A.D. 320. The model includes a digital terrain map with the hills, valleys, and water features of the city. It is composed of over 7,000 buildings within the late-antique Aurelian Walls, home to a multicultural population of over one million people. The model has more detailed information about the identification, location, and design of approximately 250 buildings, known as Class I monuments. Thirty-one of these were made at a scale of 1:1 at UCLA. The Class II monuments are the other 6,750 buildings of the ancient city that are known from ancient sources including, notably, two late-antique catalogues of the building stock of the city. The Class II buildings are very schematic and rely heavily on textures instead of geometry for architectural details. They derive from 3D scan data collected from the Plastico di Roma Antica, a 1:250 plaster of Paris physical model of the city created from 1933 and 1973 and housed in a museum in Rome. Creation of the Class II models was the responsibility of the Department of Design of the Politecnico di Milano. Rome Reborn 1.0 was created with a variety of software, all ultimately imported by IATH into MultiGen Creator and displayed on PCs as a real-time, interactive urban model using Open Scene Graph. IATH used Google Earth to georeference the archaeological documentation. Originally conceived for use in an immersive theater at UCLA, the model cannot be run on the Internet.

Rome Reborn 1.1 was jointly created by IBM and IATH in 2008. It represents a conversion of version 1.0 into BVH format and runs on an IBM Cell server, generously donated to IATH. Version 1.1 brings improvements in illumination, frame rate, and resolution. It also includes the Circus Maximus, a new major Class I monument created by the Ausonius Institute at the Université de Bordeaux III.

Rome Reborn 2.0 was jointly created by IATH, Procedural, and mental images in 2008. It runs on a 64-core Sun server. Version 2.0 uses the 32 handmade Class I models created at UCLA and Bordeaux and converted by IBM and IATH to 3D Studio Max format. It completely replaces the Class II models derived from the physical model with procedural models created with the CityEngine software of Procedural using archaeological research undertaken by the Université de Caen and by IATH. Thus, version 2.0 is greatly improved with respect to geometric detail. In comparison with versions 1.0 and 1.1, Version 2.0 has much more geometric detail. Unlike versions 1.0 and 1.1 (which run only on a workstation), thanks to mental image’s RealityServer software it can be used on the Internet.