

# Beyond “Cosmos Laundromat”: Blender’s Open Source studio pipeline

Ton Roosendaal  
Blender Institute BV  
Amsterdam, the Netherlands  
ton@blender.org

Francesco Siddi  
Blender Institute BV  
Amsterdam, the Netherlands  
francesco@blender.org



Figure 1: Blender Open Movie productions featuring high quality CG, created with an open source pipeline

## ABSTRACT

For “Cosmos Laundromat” - CAF 2016 Jury Award winner - the Blender team, headed by CG pioneer and producer Ton Roosendaal, developed and used a complete open source creation pipeline. The team released several other shorts since then, including a 360-degrees VR experience and a pitch for the feature animation film “Agent 327”. Developing and sharing open source technologies is a great challenge, and leads to great benefits for the small and medium animation studios.

## CCS CONCEPTS

• **Software and its engineering** → **Open source model**; *Software development process management*; Software performance; Software usability; • **Computing methodologies** → *Animation*; *Rendering*;

## KEYWORDS

Open source, animation, storyboarding, rendering, software, pipeline

### ACM Reference format:

Ton Roosendaal and Francesco Siddi. 2017. Beyond “Cosmos Laundromat”: Blender’s Open Source studio pipeline. In *Proceedings of SIGGRAPH ’17 Talks, Los Angeles, CA, USA, July 30 - August 03, 2017*, 2 pages. <https://doi.org/10.1145/3084363.3085159>

Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the owner/author(s).

*SIGGRAPH ’17 Talks, July 30 - August 03, 2017, Los Angeles, CA, USA*

© 2017 Copyright held by the owner/author(s).

ACM ISBN 978-1-4503-5008-2/17/07...\$15.00

<https://doi.org/10.1145/3084363.3085159>

## 1 TRADITIONAL PIPELINE

The essential scope of a pipeline is to support and adapt to the ever-changing needs of animated film production. The short films of the Blender team have always pushed all the available tools to the limit, delivering high-profile solutions like Grease Pencil and the Cycles Render engine. For Agent 327, storyboards were created digitally with the complete toolset of 3D animation and the simplicity of 2D painting, while in Cosmos Laundromat, high-quality fur and grass were achieved thanks to the Cycles render engine. Web-based production management tools such as Attract, have allowed to plan and share the progress of each production cycle, while the Flamenco render management software has supported multi-site distributed rendering and simulations.

## 2 EXTRAORDINARY APPROACH

While the established trend of the Computer Graphics industry is to open source individual technologies developed in-house, the Blender team takes a more radical approach, choosing to work exclusively with Free and Open Source technologies and sharing publicly the whole production process while making film. Allowing thousands of users to access and interact with the pipeline tools helps especially in the validation and testing stages, leading to a robust and reliable solution.

No pipeline is the same, but sharing the core software and fundamental building blocks is helping to kickstart a growing amount of independent productions, aiming at high-quality standard levels. Sharing is not the only aspect of this approach. Leading and coordinating contributions from different parties is even more relevant. This process is visible on the blender development portal, a completely independent infrastructure for source code management, review and support.

### **3 PRACTICAL RESULTS**

Thanks to our open production model, Blender is gaining a lot of interest from computer graphics professionals world-wide now. Studios all around the world are incorporating Blender for daily production. In 2016, over 6 million downloads of the software have been registered via [blender.org](http://blender.org).