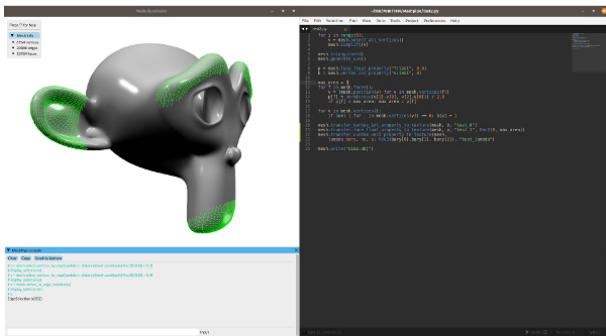


MeshPipe: A Python-based Tool for Easy Automation and Demonstration of Geometry Processing Pipelines

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The popularization of inexpensive 3D scanning, 3D printing, 3D publishing and AR/VR display technologies have renewed the interest in open-source tools providing the geometry processing algorithms required to clean, repair, enrich, optimize and modify point-based and polygonal-based models. Nowadays, there is a large variety of such open-source tools whose user community includes 3D experts but also 3D enthusiasts and professionals from other disciplines. In this paper we present a Python-based tool that addresses two major caveats of current solutions: the lack of easy-to-use methods for the creation of custom geometry

processing pipelines (automation), and the lack of a suitable visual interface for quickly testing, comparing and sharing different pipelines, supporting rapid iterations and providing dynamic feedback to the user (demonstration). From the users point of view, the tool is a 3D viewer with an integrated Python console from which internal or external Python code can be executed. We provide an easy-to-use but powerful API for element selection and geometry processing. Key algorithms are provided by a high-level C library exposed to the viewer via Python-C bindings. Unlike competing open-source alternatives, our tool has a minimal learning curve and typical pipelines can be written in a few lines of Python code.