The goal of the thesis was to design and implement a modular library for digital halftoning methods. The aim were photorealistic methods utilizing space-filling curves and blue-noise, artistic methods were considered as well. From the point of view of software design, emphasis was on modularity and extensibility, in order to support experimenting, even with new algorithms. The library along with a graphical user interface has been integrated as a plug-in with the framework of a popular image-processing application GIMP.