

The aim of this master thesis is to create an application to generate smooth contours with the method of non-linear, so-called geomorphological interpolation over triangulated irregular network using patch technique. The introductory part consists of the state of art in the field of patch modelling and description of georelief in the form of digital terrain models. The core of the work comprises the mathematical background of Bézier triangle patches using barycentric coordinates and interpolation techniques with definition of continuity. The main contribution is a proper algorithm of balanced patch smoothing in order to generate smooth contours as form of georelief representation. Description of linear contour interpolation over triangulated irregular network as a method of indirect geomorphological interpolation is also part of the core. Finally, the last part describes the implementation of algorithms that forms the application, presents and evaluates the results on synthetic and real data.