List of Symbols

C	Smooth curve
L	Euclidean distance
S	Smooth surface
Tp	Tangent plane of a surface at point p
C'	First order derivative of C
C'_s	First order derivative of C at point that has arc length s to C
C''	Second order derivative of C
C''_s	Second order derivative of C at point that has arc length s to C
$\vec{n}$	Normal vector of S
κ	Curvature
τ	Torsion
κg	Geodesic curvature
$\mathbb{R}^3$	Three-dimensional Euclidean space
$C(t)$	A curve in Euclidean space parametrized as a function of time
s	Arc length of a curve
$C(s)$	A point on curve C at arc length s to C
$C(s,t)$	Geodesic curvature flow
$\vec{n}$	Normal vector of a vertex on polyhedral surface

$\vec{t}$	Tangent vector at a point on curve C
$\vec{n_p}$	Principle normal vector at a point on curve C
$\vec{n_b}$	Binormal vector at a point on curve C
$\overrightarrow{p_i p_{i+1}}$	A vector from p_i to p_{i+1}
$\langle A, B \rangle$	Dot product operation of matrix A and B
$\times$	Cross product operation bwtween two vectors
$p_{i-1}\widetilde{p_i p_{i+1}}$	A section of the piecewise curve consisted by three points
μ	Iterative step length for geodesic curvature flow convergence
p_{i_x}	The x value of the three-dimensional Euclidean coordination of point p with index i
p'	The new location of point p after it is updated by geodesic algorithm presented in this thesis
$\bar{p}$	The projection of point p on to the tangent plane Tp
fp_i	Vertex on polyhedron with index i