**Problem description:** Standard modelling with NURBS (Non-uniform Rational B-spline) or any similar type of spline is facilitated by control points. These control points, typically organised along a control polygon (in the curve case) or in a triangular or rectangular control mesh (in the surface case), are used to model and control the resulting shape. In a recent paper, this paradigm was extended to include control vectors as well; see [http://www.sciencedirect.com/science/article/pii/S0010448514001973](http://www.sciencedirect.com/science/article/pii/S0010448514001973). This project is about developing a tool that allows the user to shape a curve or surface by allowing him/her to introduce control vectors associated with a desired blending function shape.

**Expected outcomes:** A tool with a user interface for NURBS (or a similar spline) modelling with support for control vectors should be implemented.

**Prerequisites:** The tool is expected to be implemented in C++ using OpenGL and Qt, although other frameworks may be considered. The interested student should be familiar with basic graphics algorithms (at the level of the Bachelor Computer Graphics course), have some experience with OpenGL and C++, and ideally be familiar with B-splines or even NURBS.