Tool (or service) to generate a River Profile

From the discussion with Qina, we identified the tool (or service) to generate a river profile can be beneficial for other hydrologist. Also, the tool can be used not just for elevation profile but a profile for any variable stored in raster data.

The two major parts for this algorithm:

1. interpolate the equ-distance points from the line
2. reading the elevation (or any variable) from the raster for each points generated from #1.

Python gdal library gives capability for #2, Python shapely gives capability for #1.

Example and useful link:

http://gis.stackexchange.com/questions/59316/python-script-for-getting-elevation-difference-between-two-points

http://www.portailsig.org/content/python-utilisation-des-couches-vectorielles-et-matricielles-dans-une-perspective-geologique- (it is in French, you may need to use google translate)

INPUT

1. 2d line shapfile contains the line string (e.g. river)
2. DEM data (or any rater data with variable)
3. interval of length

OUPUT

1. csv data with two columns (length, elevation (or variable))
2. example profile chart