Nanyang Technological University

Lab 2 Report:

# Visual Mathematics

## CZ 2003 Computer Graphics and Visualization

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# Experiment 2: Parametric Curves

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| **curve.wrl** | | **Brief Report** |
| **Bef. Changing Resolution** | **Aft. Changing Resolution to 10** | * Changing the resolution makes the curve become ridged. Hence, the resolution controls the smoothness of the line. * The decrease in the domain range makes the line shorten because the bottom parts cannot be calculated due to the limitation of the domain range. * **straight-line.wrl** defines a straight line with a gradient of 1. It is always 0 in z-axis and variable with parameter u in x-axis and y-axis * **circle.wrl** defines a circle which uses polar form to calculate all the points on the circle. * **circle-arc.wrl** defines an arc in the circle. There are coefficients for the angle theta which are to control which segment of the circle line is used. Besides, there are offsets of the angles which allows the arc drawn from other positions instead of 0. * **ellipse.wrl** defines an ellipse. It is a circle with coefficients defined for the distances r, which are different in x-axis and y-axis. * **ellipse-arc.wrl** defines an arc in an ellipse. The principle is the same as an arc in a circle. * **2d-spiral.wrl** defines an spiral in a 2D diagram. It is based on a circle which specially has a parameter u to control the distance. So that the distance grow from 0 to 1 as the angle grows at the same time. * **3d-helix.wrl** defines a helix in a 3D diagram which is based on 2d-spiral but involves a parameter u in z-axis. |
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| **Bef. Changing Domain** | **Aft. Changing Domain to 0.5** |
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| **straight-line.wrl** | **circle.wrl** |
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| **circle-arc.wrl** | **ellipse.wrl** |
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| **ellipse-arc.wrl** | **2d-spiral.wrl** |
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| **3d-helix.wrl** |  |
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