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Learning for Industry 4.0

Visual Introduction to Python

with Turtle Tina

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About the Author

Dr. Pavel Solin is Professor of Applied and Computational Mathematics at the University of Nevada, Reno. He loves computers, computing, and open source software. He works on advanced computer simulation projects and is the author of several books and many scientific articles in international journals. He also wrote the complete Turtle functionality in Python.

Acknowledgment

We would like to thank many teachers for class-testing the course, and for providing useful feedback that helps us improve the textbook, the self-paced course, and the Turtle language itself.

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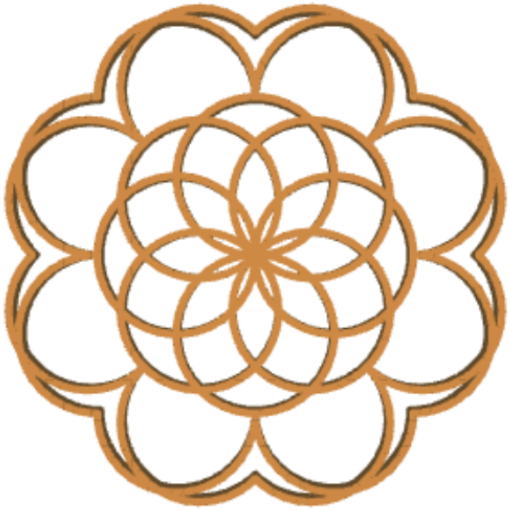
Preface

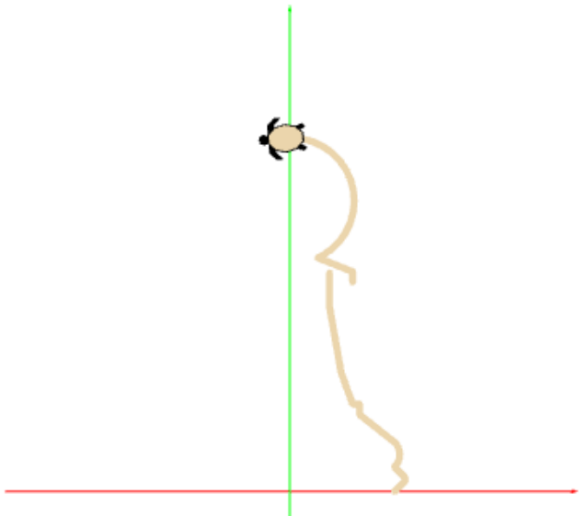
Turtle Tina[1] is an intermediate computer programming course that teaches basic programming logic and the syntax of the Python programming language. This course is a step up from Karel Coding that uses both simple logic and simple syntax, but it is simpler than the full Python programming course with full logic and full syntax. Using loops, nested loops, functions, and other programming concepts, the Turtle can draw beautiful patterns

which in turn can be extruded for 3D printing:

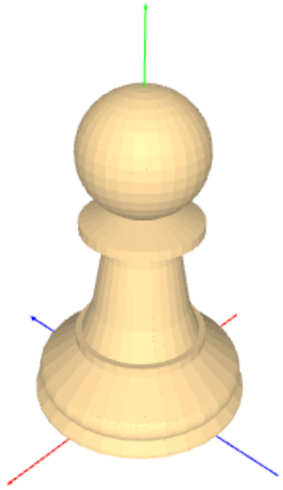


[1] This document was prepared using the LaTeX module in NCLab

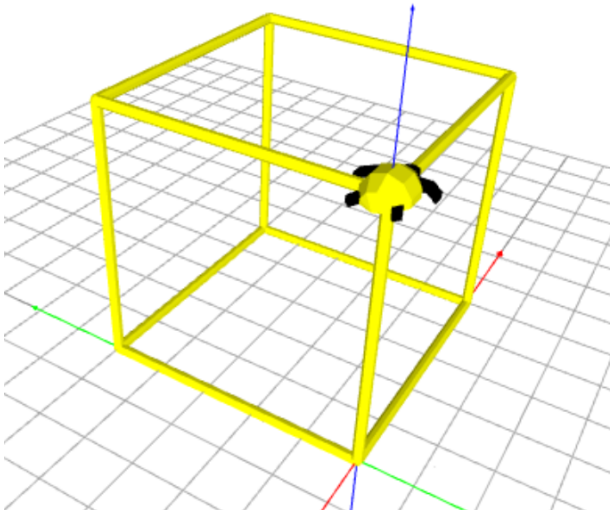
The Turtle can also draw contours in the XY plane



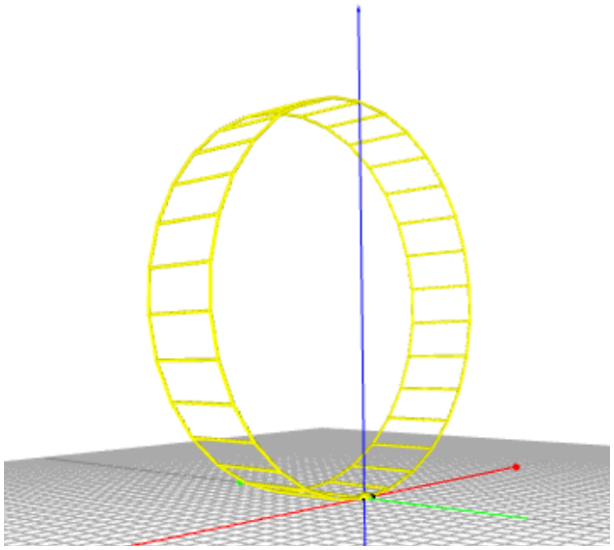
and revolve them about the Y axis, creating rotational solids, shells, and surfaces:



In the 3D mode, the Turtle can swim in all three spatial directions and create awesome wireframe models. Of course they can be 3D-printed as well.



This is super fun!



Besides teaching you Python coding, the Turtle will allow you to develop strong spatial reasoning skills, unleash your creativity, build awesome 3D-printable designs, and participate in weekly NCLab competitions.

Good luck!

Pavel

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Full text is available upon enrollment.