

LIST OF FIGURES

2.1	Satellite types.	17
2.2	Circular orbit (Eq. (2.1)).	30
2.3	Elliptical orbit (Eq. (2.3)).	31
2.4	Unperturbed mean motion (circular).	32
2.5	Semi-latus rectum and ellipse geometry.	33
2.6	RAAN precession due to J_2 (schematic).	34
2.7	Argument of perigee precession due to J_2 (schematic).	35
2.8	Graphical user interface of Visual Studio Code.	45
2.9	XAMPP control panel display.	46
2.10	GitHub dashboard interface.	48
2.11	Hostinger dashboard interface.	49
3.1	The interface model basis of STK and GMAT.	52
3.2	Flowchart of the research stages for solution development.	57
3.3	Flowchart of the web application.	58
3.4	Flowchart of the New Menu.	59
3.5	Flowchart of the View Menu.	61
3.6	Flowchart of the View Menu.	62
3.7	Flowchart of the Save Menu.	63
3.8	Flowchart of the Sidebar Tabs.	65
3.9	Flowchart of the Sidebar Tabs.	66
3.10	Flowchart of the Edit Context Menu.	67
3.11	Flowchart of the Simulation Animation	68
3.12	Flowchart of the Simulation Animation	69
3.13	Interface website design.	70
4.1	Flowchart structure of Laravel framework usage workflow.	79
4.2	Homepage layout.	83
4.3	About us section display.	83
4.4	Software description section on the home page.	84
4.5	LEO orbit software section.	85

4.6	Website homepage section.	89
4.7	About website homepage section.	89
4.8	Creating a single input file on the simulation page.	91
4.9	Single input parameters.	92
4.10	Single parameter input with 3D result.	92
4.11	Single parameter input result in 2D view.	93
4.12	Creating a constellation input file on the simulation page.	94
4.13	Constellation input parameters.	95
4.14	Constellation output result in 3D.	96
4.15	Constellation output result in 2D.	96
4.16	Creating a single input file on the simulation page.	97
4.17	Single parameter input parameters.	97
4.18	Creating a ground station input file on the simulation page.	98
4.19	Ground station input parameters 3.	99
4.20	Ground station output parameters result.	99
4.21	Ground station output 2D result.	100
4.22	Creating a link budget input file on the simulation page.	100
4.23	Link budget Uplink input parameters.	102
4.24	Link budget Downlink input parameters.	103
4.25	System and Coverage input parameters.	103
4.26	Link budget output result.	104
4.27	Link budget output result.	105
4.28	Link budget output result in 3D.	106
4.29	Link budget output result in 2D.	106
5.1	Coverage geometry with the ground station positioned at the computed footprint boundary	118