Foreword

Once upon a time, a child imagined a fierce boa constrictor that swallowed an elephant, giving rise to a most peculiar shape. The child made a drawing of it and showed it to grown-ups around him, expecting them to be appalled by the scene. Alas, nobody saw in his drawing more than a hat. The child then proceeded to draw an explanatory drawing showing the elephant inside the snake's expansible stomach...

Non-rigid objects are all around us, from snakes to octopuses, from ropes to the pages of this book, from the surface of the sea to the pudding in our plates, and we have no particular problems in dealing with them in our daily lives. Yet the mathematical tools we have for their description and analysis are few, and only relatively recently researchers in graphics and computer vision have started paying due attention to them. This book offers a rare opportunity to encounter the fascinating world of the flexible, elastic, plastic, and amorphous form and shape through the looking glass of their mathematical representation and numerical treatment by our miraculous and powerful computing machines.

I hope that after reading this book, you, too, just like the Little Prince, will start to see in Saint-Exupery's childhood drawing the elephant inside the boa constrictor, rather than the obvious, boring and rigid hat.

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