Deep Contact

Accelerating Rigid Simulation with Convolutional Networks

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Outline

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   - Grid-Particle Method
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   - Bilinear Interpolation
3. Deep Learning Model
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Previous Work

- My first point.
- My second point.

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Thesis Overview

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3. For all contacts positions, interpolated values will be gener- ated based on label image. Then, the values will be used as starting iterate values for contact force solver. In our hypoth- esis, the given starting values will speed up the solver to reach convergence.

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$$A_S(\mathbf{x}) = \sum_i A(\mathbf{x}_i)W(\|\mathbf{x}_i - \mathbf{x}\|, h) \tag{3}$$

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$$W_{poly6}(\mathbf{r}, h) = \frac{315}{64\pi h^9} \begin{cases} (h^2 - \|\mathbf{r}\|^2)^3 & 0 \leq \|\mathbf{r}\| \leq h \\ 0 & \text{Otherwise} \end{cases} \tag{4}$$

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$$W_{spiky}(\mathbf{r}, h) = \frac{15}{\pi h^6} \begin{cases} (h - \|\mathbf{r}\|)^3 & 0 \leq \|\mathbf{r}\| \leq h \\ 0 & \text{Otherwise} \end{cases} \tag{5}$$

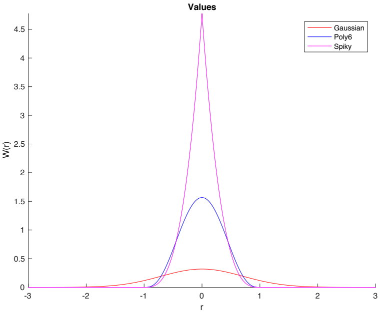

Figure: Comparation of different kernels, we set smoothing length $h = 1$ here.

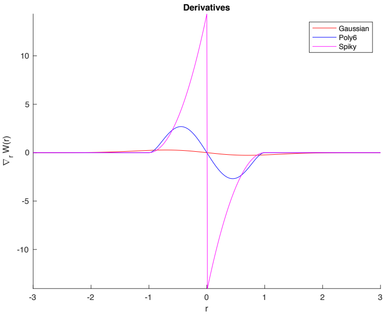

Figure: Comparation of gradient of different kernels, we set $h = 1$ here.

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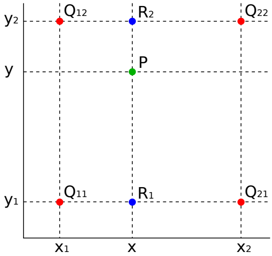

Figure: The figure shows the visualization of bilinear interpolation. The four red dots show the data points and the green dot is the point at which we want to interpolate.

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3. **More Shapes Experiments**

Blocks

Block Title

You can also highlight sections of your presentation in a block, with it's own title

Theorem

There are separate environments for theorems, examples, definitions and proofs.

Example

Here is an example of an example block.

Summary

- The first main message of your talk in one or two lines.
- The second main message of your talk in one or two lines.
- Perhaps a third message, but not more than that.

- Outlook
  - Something you haven't solved.
  - Something else you haven't solved.

For Further Reading I

A. Author.
Handbook of Everything.
Some Press, 1990.

S. Someone.
On this and that.
Journal of This and That, 2(1):50–100, 2000.