ltexpprt with \usepackage{algpseudocode} for SIAM IMR

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Abstract

An abstract is a brief summary of the paper's contributions, written for experts. We give an example tex file that typesets pseudocode using the package algpseudocode, for SIAM IMR papers and research notes, etc.

1 Introduction

An introduction is a gentler description and summary of the paper than the abstract, written for non-experts. It describes the paper's concepts, contribution, context and significance. Open the algpsuedocode.tex file in a LATEX or plain text editor for a working example of how to typeset pseudocode.

2 Algorithm

ALGORITHM 2.1. (DETERMINISTIC-MPS) maximal Poisson-disk sampling

Require: Rectangular grid $\mathcal{G}$ of whole grid squares
Require: Flag if domain is periodic: `True` or `False`
Ensure: Maximal Poisson-disk sampling of rectangle

```
 1: function DETERMINISTIC-MPS(𝒢)
 2:     // Initialize Grid 𝒢
 3:     for g ∈ 𝒢 do
 4:         g.point = (u, v) uniform random in square
 5:         g.time = Ae^{-Aw}, rand w, expovariate in area
 6:         g.scooped-square = square polygon g
 7:     end for
 8:     Global pre-pass heuristic
 9:     // Find locally-early squares
10:     for g ∈ 𝒢 and h ∈ neighbors(g) do
11:         increment #antecedents of g or h (later)
12:     end for
13:     for g ∈ 𝒢 do
14:         EarlySquares.add(g if no antecedents)
15:     end for
16:     // Accept samples and update
17:     repeat
18:         g = EarlySquares.pop()          ▷ any order
19:         accept g.point as Poisson-disk sample
20:         for h ∈ neighbors(g) do
21:             decrement h.antecedents    ▷ g no longer blocks h
22:                 // resample candidates covered by disk(g.point)
23:                 if h.point ∈ disk(g.point) then
24:                     h.scooped-square −= disk(g.point)
25:                     if h.scooped-square is empty then
26:                         h.time = ∞
27:                     else
28:                         trim chocks from h.scooped-square
29:                         triangulate remaining polygon
30:                         pick U ∈ {chocks, triangles} by area
31:                         sample h.point ∈ U uniform by area
32:                         h.time += expovar( A(h.scooped-square) )
33:                     end if
34:                     for s ∈ neighbors(h) do
35:                         if h is later than s, but used to be earlier then
36:                             increment h.antecedents
37:                             decrement s.antecedents
38:                             EarlySquares.add( s if no antecedents )
39:                         end if
40:                     end for
41:                 end if
42:             EarlySquares.add( h if no antecedents )
43:         end for
44:     until EarlySquares == empty
45: end function
```