ltexpprt with \usepackage{algorithmic} 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 algorithmic, 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 algorithmic.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: Deterministic-MPS$\mathcal{G}$
2: // Initialize Grid $\mathcal{G}$
3: **for** $g \in \mathcal{G}$ **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** $g \in \mathcal{G}$ and $h \in$ neighbors(g) **do**
11:    increment #antecedents of g or h (later)
12: **end for**
13: **for** $g \in \mathcal{G}$ **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** $h \in$ neighbors(g) **do**
21:      decrement h.antecedents {g no longer blocks h}
22:      // resample candidates covered by disk(g.point)
23:      **if** h.point $\in$ disk(g.point) **then**
24:        h.scooped-square $-=$ disk(g.point)
25:        **if** h.scooped-square is empty **then**
26:          h.time $= \infty$
27:        **else**
28:          trim chocks from h.scooped-square
29:          triangulate remaining polygon
30:          pick $U \in \{$chocks, triangles$\}$ by area
31:          sample h.point $\in U$ uniform by area
32:          h.time $+=$ expovar(A(h.scooped-square))
33:        **end if**
34:        **for** $s \in$ 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