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Supplement of

Methods and uncertainty estimations of 3-D structural modelling in crystalline rocks: a case study

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Pseudo-Code: Bentley-Ottmann Algorithm

1

```
2
        Initialize event queue \mathbf{EQ} = all segment endpoints;
 3
                Sort EQ by increasing x and y;
 4
                Initialize sweep line SL to be empty;
 5
                Initialize output intersection list IL to be empty;
 6
 7
                While (EQ is nonempty) {
 8
                   Let E = the next event from EQ;
 9
                   If (E is a left endpoint) {
10
                     Let segE = E's segment;
11
                     Add segE to SL;
12
                     Let segA = the segment Above segE in SL;
13
                     Let segB = the segment Below segE in SL;
14
                     If (I = Intersect( segE with segA) exists)
15
                        Insert I into EQ;
16
                     If (I = Intersect( segE with segB) exists)
17
                        Insert I into EQ;
18
                   }
19
                   Else If (E is a right endpoint) {
20
                     Let segE = E's segment;
21
                     Let segA = the segment Above segE in SL;
22
                     Let segB = the segment Below segE in SL;
23
                     Delete segE from SL;
24
                     If (I = Intersect( segA with segB) exists)
25
                        If (I is not in EQ already)
26
                          Insert I into EQ;
27
                   }
28
                   Else { // E is an intersection event
29
                     Add E's intersect point to the output list IL;
30
                     Let segE1 above segE2 be E's intersecting segments in SL;
31
                     Swap their positions so that segE2 is now above segE1;
32
                     Let segA = the segment above segE2 in SL;
33
                     Let segB = the segment below segE1 in SL;
```

```
34
                    If (I = Intersect(segE2 with segA) exists)
35
                       If (I is not in EQ already)
36
                         Insert I into EQ;
37
                    If (I = Intersect(segE1 with segB) exists)
38
                      If (I is not in EQ already)
39
                         Insert I into EQ;
40
                  }
41
                  remove E from EQ;
42
                }
43
                return IL;
44
             }
45
```

3D structural model of the GTS





3D structural model using Delaunay triangulation





3D structural model using the ribbon tool





3D structural model using field data



