Errata to the second edition

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Following is a list of errata for the second edition. Thanks to all readers who have contributed to this list.

Preface

1 Computational Geometry

- p.13, l.-9: Hersberger should be Hershberger.
- p.16, exercise 1.7: "Now imagine that we start with a vertical line and rotate ..." should be "Now imagine that we start with a vertical line through p_1 and rotate ..."

2 Line Segment Intersection

- p.34, mid: "This suggest the following approach." An "s" is missing.
- p.40, fig. 2.7: The little triangle at the top right inside $\mathcal{P}_1$ should be shaded as well.
- p.42, l.-4: "incident" should be "adjacent".
- p.43, l.-12: "...it must be is impossible..." Remove "is".

3 Polygon Triangulation

- p.47, l.11: "...let v' be the farthest from $\overline{uv}$." This should be: "...let v' be the farthest from the line supporting $\overline{uv}$."
- p.51, l.-5: "are stored in an event queue".
- p.52, mid: "Let e_j and e_k be the edges immediately to the right and to the left"; left and right should be exchanged.
- p.55, l.5: A space is missing before HANDLEENDVERTEX.
- p.58, mid: Add a space between "theorem" and "3.6".

4 Linear Programming

- p.70, l.-9: "...or its is...". Remove an "s".
- p.85, l.-7: "Then algorithm..." Remove the "n".
- p.89, l.-10: The sentence between brackets is incorrect!
- p.93: In Exercise 4.10, the common intersection of the half-planes in H should be non-empty and their boundaries should not all be parallel.

5 Orthogonal Range Searching

- p.105, mid: "Kd-trees can be also be ...". Remove a "be".
- p.106, in bulleted list: "coordinate" should be "coordinates" (twice).
- p.107, l.-3: "y-coordinate" should be "y-coordinates".

6 Point Location

7 Voronoi Diagrams

- p.156, top margin figure: The two unlabeled points also define arcs on the beach line far to the left and right. Hence, the tree is not complete.

8 Arrangements and Duality

- p.171, mid: "This means that in dual" should be "This means that in the dual".
- p.174, l.16: "If ℓ_i is a vertical line we can locate the bottom intersection point of ℓ_i and $\mathcal{A}_i$ to start off the traversal." This should have been $\mathcal{A}_{i-1}$.
- p.181: In Exercise 8.3, the word "faces" in the second line should be "edges".

9 Delaunay Triangulations

- p.190: In Theorem 9.6(i) the p_r in line 2 should be p_k.
- p.196, l.9: "One the one hand" should be "On the one hand".
- p.196: Technicalities with the special points p_{-1}, p_{-2} and p_{-3} are treated better in the third edition. **This chapter from the third edition can be downloaded from the web page of the book.**
- p.202, top margin figure: Enlarge.
- p.206, mid: The last part of the equation contains = but it should be $\leq$.
- p.208: In Exercise 9.5(a), one has to assume that the points p, q, r are oriented clockwise (in a right-handed system), otherwise the determinant should be negative instead of positive.
- p.208: In Exercise 9.8, "that contains p." should be "that contains q.".

- p.209: In Exercise 9.12, we want to ask for an approximation factor of 2, not of 3/2, or else you need matching and not just the EMST.
- p.209: In part (a) of Exercise 9.13, we should assume that for any two points p, q, if the smallest enclosing circle does not contain other points of P inside, then it also does not contain points of P on the boundary.
- p.209: In part (b) of Exercise 9.13, the second p should be P.
- p.210: In part (a) of Exercise 9.16, there should be a space between P_i, and q. Also, $\overline{p_i p_j}$ should be $\overline{pq}$.

10 More Geometric Data Structures

- p.213, l-8: p. 213: "we image the real line" should be "we consider the real line". p.217, l.7: "top" should be "bottom" for consistency with the text on page 213.
- p.224, l.-11: "the" is missing.
- p.233: In Exercise 10.11, the $lc(\nu)$ and $rc(\nu)$ should be $lc(\nu_{\text{split}})$ and $rc(\nu_{\text{split}})$
- p.233: In Exercise 10.12, a space is missing in the first line.

11 Convex Hulls

- p.247, l.-4: $q(p)$ should be $q(r)$.
- p.247, l.-3: $h(p)$ should be $q(p)$.
- p.249, l.8: An n is missing behind the second log.
- p.249, ex. 11.2: The bounds asked for are wrong. They should be $O(n^3)$ and $\Theta(n^3)$.

12 Binary Space Partitions

- p.261, l.12: "$I \setminus \{s_k\}$" should be "$I \setminus \{s_{k-1}\}$"

13 Robot Motion Planning

- p.268, l.-9: "the" is missing before "origin".
- p.268, l-5: "rotated clockwise" should be "rotated counterclockwise".
- p.277, l.3,4: The definition given here is for convex objects only. For non-convex objects, one should add the condition that $o_1 \cap o_2$ is connected. An alternative definition is that the part of the boundary of o_1 in the interior of o_2 is connected, and vice versa. Also, the definition of proper intersection (l.9) only applies to convex objects.
- p.277, mid: Observation 13.6 is valid for convex pseudodiscs only, see the comment above.
- p.279: The code of Algorithm MinkowskiSum is not completely correct: one has to be careful that i and j do not get incremented beyond $n + 1$ resp. $m + 1$. Alternatively, we may define $v_{n+2} = v_2$ and and $w_{n+2} = w_2$.

14 Quadtrees

15 Visibility Graphs

- p.315, mid: The $O(n^2)$ bound for shortest paths has been improved to $O(n \log n)$ by Hershberger and Suri.

16 Simplex Range Searching

- p.338: The bound stated in Exercise 16.6 is not correct: the query time reduces to $O(\sqrt{n} \log^c n)$ for a suitable constant c, not to $O(\sqrt{n} \log n)$.

Bibliography

- p.341, l.1: "Schwarzkopf" is completely miswritten.