

# Sang Won Bae

## Curriculum Vitae

### Contact

Associate Professor

Division of Computer Science and Engineering  
Kyonggi University

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### Research Interests

Computational geometry: Voronoi diagrams, geometric shortest paths, shape approximation and optimization, geometric covering problems, geometric networks, discrete geometry

Algorithms design and analysis, graph theory

Theoretical aspects of wireless networks, computer graphics, and other CS fields

### Academic and Professional Experiences

- 3/2016–current Associate Professor  
Division of Computer Science and Engineering, Kyonggi University, Suwon, Korea
- 3/2010–2/2016 Assistant Professor  
Department of Computer Science, Kyonggi University, Suwon, Korea
- 3/2009–2/2010 Research Assistant Professor  
Department of Computer Science and Engineering, POSTECH, Pohang, Korea
- 3/2008–2/2009 Postdoctoral Researcher  
Division of Computer Science, Korea Advanced Institute of Science and Technology, Daejeon, Korea

### Teaching Experiences

- 3/2010–current Assistant/Associate Professor  
Department of Computer Science, Kyonggi University, Suwon, Korea  
Algorithms; 2011, 2013, 2014, 2015, 2017, 2018  
Theory of Computation; 2013, 2014, 2015, 2017  
Data Structures; 2012  
C Programming; 2010, 2011, 2012, 2013, 2014, 2015, 2017  
Creative Engineering Design; 2010  
Capstone Design; 2018  
Computational Geometry (*graduate*); 2013, 2014, 2015, 2018  
Topics in Theoretical Computer Science (*graduate*); 2015  
Topics in Computer Science (*graduate*); 2010
- 9/2002–12/2005 Teaching Assistant  
Division of Computer Science, Korea Advanced Institute of Science and Technology, Daejeon, Korea  
Problem Solving; 2002, 2003, 2004, 2005  
Algorithm Design and Analysis (*graduate*); 2003, 2004, 2005

## Education

*Ph.D., Computer Science*, February 2008  
Korea Advanced Institute of Science and Technology, Daejeon, Korea  
Thesis: *Proximity and Location Problems on Transportation Networks*  
Advisor: Prof. Kyung-Yong Chwa  
GPA: 3.98/4.3

*M.S., Computer Science*, February 2004  
Korea Advanced Institute of Science and Technology, Daejeon, Korea  
Thesis: *Voronoi Diagrams with Transportation on the Euclidean Plane*  
Advisor: Prof. Kyung-Yong Chwa  
GPA: 3.99/4.3

*B.S., Computer Science*, August 2002  
Korea Advanced Institute of Science and Technology, Daejeon, Korea  
*Magna Cum Laude*  
Minors: *Mathematics*

## Honors and Awards

- January 2017      *2016 CGTA Young Researcher Award*  
awarded to my paper *Tight Bound and Improved Algorithm for Farthest-Color Voronoi Diagrams of Line Segments* published in CGTA 47(8), Elsevier
- February 2015      *Best Paper Award*  
awarded to my paper *An Almost Optimal Algorithm for Voronoi Diagrams of Non-Disjoint Line Segments* presented at WALCOM 2015, WALCOM
- February 2008      *Silver Prize*, Samsung Humantech Thesis Award, Samsung Electronics Co.
- February 2008      *Outstanding PhD Thesis Award*, KAIST
- February 2004      *Outstanding MS Thesis Award*, KAIST
- 1998 – 2007      *KAIST National Fellowship*, KAIST

## Research Grants

(Remark: NRF = National Research Foundation of Korea)

- 11/2015–10/2018      NRF Basic Research Program (NRF-2015R1D1A1A01057220)  
*Algorithmic Study on Geometric Location Problems with Multiple Criteria*  
147,420,000 KRW (about 130,000 USD equivalent)
- 06/2013–05/2016      NRF Young Researcher Program (NRF-2013R1A1A1A05006927)  
*Algorithms on Proximity Problems Induced by Geometric Shortest Paths*  
147,420,000 KRW (about 130,000 USD equivalent)  
Selected as a continuation from the one below
- 05/2010–04/2013      NRF Young Researcher Program (NRF-2010-0005974)  
*Algorithmic Problems in Metric Spaces Induced by Geometric Shortest Paths*  
146,640,000 KRW (about 130,000 USD equivalent)
- 06/2015–05/2016      Kyonggi University Research Grant  
*Minimum-width Annulus Problems*  
10,000,000 KRW (about 9,000 USD equivalent)
- 06/2014–05/2015      Kyonggi University Research Grant  
*On Voronoi diagrams of non-disjoint line segments*  
10,000,000 KRW (about 9,000 USD equivalent)
- 06/2012–05/2013      Kyonggi University Research Grant  
*Transportation Networks under General Distances and Related Problems*  
6,666,000 KRW (about 6,000 USD equivalent)

06/2010–05/2012 Kyonggi University Research Grant  
*Study on Farthest-Color Voronoi Diagrams with Linear Complexity*  
20,000,000 KRW (about 18,000 USD equivalent)

## Professional Activities

### Conference Program Committee

WALCOM 2019 (The 13th International Conference and Workshop on Algorithms and Computation)  
ISAAC 2018 (The 29th International Symposium on Algorithms and Computation)  
WALCOM 2017 (The 11th International Conference and Workshop on Algorithms and Computation)  
ISAAC 2015 (The 26th International Symposium on Algorithms and Computation)  
COCOON 2014 (The 20th International Computing and Combinatorics Conference)  
WAAC 2013 (The 16th Korea-Japan Joint Workshop on Algorithms and Computation)  
CATS 2013 (The 19th Computing: the Australasian Theory Symposium)  
WAAC 2011 (The 14th Korea-Japan Joint Workshop on Algorithms and Computation)

### Conference Organization

Organizing Co-chair, ISAAC 2014, December 15–17, Jeonju, Korea  
Organizing Co-chair, WAAC 2013, July 12–13, Suwon, Korea  
Organizing Staff, ISAAC 2010, December 15–17, Jeju Island, Korea  
Organizing Staff, COCOON 2004, August 17–20, Jeju Island, Korea

### Referee (Journals)

*Algorithmica*  
*ACM Transactions on Algorithms*  
*Computational Geometry: Theory and Applications*  
*Information Processing Letters*  
*International Journal of Computational Geometry and Applications*  
*Journal of Computational Geometry*  
*Theoretical Computer Science*  
*International Journal of Foundations of Computer Science*  
*Journal of Information Science and Engineering*  
*AKCE International Journal of Graphs and Combinatorics*  
several from Korea domestic journals

### Referee (Conferences)

SoCG (2008–2018), ISAAC (2006–2009, 2011–2015), ESA (2008, 2011), ICALP (2012, 2013), WADS (2011, 2013, 2017), SWAT (2018), COCOON (2003, 2006, 2011, 2014), WALCOM (2009, 2011, 2014, 2017, 2018), FAW (2008, 2009, 2015), COCOA (2008), AAIM (2006, 2010), and several from Korea domestic conferences

### Membership

Board Member, *Asian Association for Algorithms and Computation*, 2016–current  
Member, *Korean Institute of Information Scientists and Engineers*, 2009–current  
Student Member, *Association for Computer Machinery*, 2007  
Student Member, *Korea Information Science and Society*, 2004–2007

### Others

Contest Committee (Problems Design and Judge), *ACM International Collegiate Programming Contest (ICPC) Asia Regional – Daejeon*, 2010–2017  
Committee Member, *The Korean Committees for International Olympiad for Informatics (IOI)*, 2013–2017  
Organizing Staffs, *ACM International Collegiate Programming Contest (ICPC) Asia Regional – Seoul*, 2002–2008

## Publications

### Journal Articles

(Remark: (\*) Corresponding author)

- [36\*] Hee-Kap Ahn, Sang Won Bae, Otfried Cheong, Dongwoo Park, and Chan-Su Shin. Minimum convex container of two convex polytopes under translations. *Computational Geometry: Theory and Applications*, In Press. On invitation, a special issue for CCCG 2014.
- [35\*] Sang Won Bae, Matias Korman, and Yoshio Okamoto. Computing the geodesic centers of a polygonal domain. *Computational Geometry: Theory and Applications*, In Press. On invitation, a special issue for CCCG 2014.
- [34\*] Sang Won Bae. Computing a minimum-width square annulus in arbitrary orientation. *Theoretical Computer Science*, In press. On invitation, a special issue for WALCOM 2016.
- [33] Sang Won Bae, Hwan-Gue Cho, William Evans, Noushin Saeedi, and Chan-Su Shin. Covering points with convex sets of minimum size. *Theoretical Computer Science*, In press. On invitation, a special issue for WALCOM 2016.
- [32] Sang Won Bae and Inbok Lee. On finding a longest common palindromic subsequence. *Theoretical Computer Science*, 710:29–34, 2018.
- [31] Sang Won Bae, Matias Korman, Joseph S. B. Mitchell, Yoshio Okamoto, Valentin Polishchuk, and Haitao Wang. Computing the  $l_1$  geodesic diameter and center of a polygonal domain. *Discrete & Computational Geometry*, 57(3):674–701, 2017.
- [30\*] Sang Won Bae. An algorithm for computing a minimum-width color-spanning rectangular annulus. *Journal of KIISE*, 44(3):246–252, 20017. (in Korean).
- [29] Jang Won Bae, Sang Won Bae, Il-Chul Moon, and Tag Gon Kim. Efficient flattening algorithm for hierarchical and dynamic structure discrete event models. *ACM Transactions on Modeling and Computer Simulation*, 26(4):25:1–25:25, 2016.
- [28\*] Dongwoo Park, Sang Won Bae, Helmut Alt, and Hee-Kap Ahn. Bundling three convex polygons to minimize area or perimeter. *Computational Geometry: Theory and Applications*, 51:1–14, 2016.
- [27\*] Sang Won Bae. An almost optimal algorithm for Voronoi diagrams of non-disjoint line segments. *Computational Geometry: Theory and Applications*, 52:34–43, 2016.
- [26] Sang Won Bae, Matias Korman, Yoshio Okamoto, and Haitao Wang. Computing the  $L_1$  geodesic diameter and center of a simple polygon in linear time. *Computational Geometry: Theory and Applications*, 48(6):495–505, 2015.
- [25] Wanbin Son, Sang Won Bae, and Hee-Kap Ahn. Group nearest-neighbor queries in the  $l_1$  plane. *Theoretical Computer Science*, 592:39–48, 2015.
- [24\*] Sang Won Bae. Tight bound and improved algorithm for farthest-color Voronoi diagrams of line segments. *Computational Geometry: Theory and Applications*, 47(8):779–788, 2014.
- [23] Oswin Aichholzer, Sang Won Bae, Luis Barba, Prosenjit Bose, Matias Korman, André van Renssen, Perouz Taslakian, and Sander Verdonschot. Theta-3 is connected. *Computational Geometry: Theory and Applications*, 47(9):910–917, 2014. On invitation, a special issue for CCCG 2013.
- [22] Hee-Kap Ahn, Sang Won Bae, Otfried Cheong, Joachim Gudmundsson, Takeshi Tokuyama, and Antoine Vigneron. A generalization of the convex Kakeya problem. *Algorithmica*, 70(2):152–170, 2014. On invitation, a special issue for LATIN 2012.
- [21\*] Sang Won Bae and Kyung-Yong Chwa. Travel time distances induced by transportation networks and general underlying distances. *Journal of Information Science and Engineering*, 30(5):1445–1461, 2014.

- [20\*] Hee-Kap Ahn, Sang Won Bae, Christian Knauer, Mira Lee, Chan-Su Shin, and Antoine Vigneron. Realistic roofs over a rectilinear polygon. *Computational Geometry: Theory and Applications*, 46(9):1042–1055, 2013.
- [19\*] Sang Won Bae, Matias Korman, and Yoshio Okamoto. The geodesic diameter of polygonal domains. *Discrete & Computational Geometry*, 50(2):306–329, 2013.
- [18] Chunseok Lee, Donghoon Shin, Sang Won Bae, and Sunghee Choi. Best and worst-case coverage problems for arbitrary paths in wireless sensor networks. *Ad Hoc Networks*, 11(6):1699–1714, 2013.
- [17\*] Sang Won Bae. On linear-sized farthest-color voronoi diagrams. *IEICE Transactions*, 95-D(3):731–736, 2012.
- [16\*] Sang Won Bae and Chan-Su Shin. The onion diagram: a Voronoi-like tessellation of a planar line space and its applications. *International Journal of Computational Geometry and Applications*, 22(1):3–26, 2012. On invitation, a special issue for ISAAC 2010.
- [15\*] Sang Won Bae and Yoshio Okamoto. Querying two boundary points for shortest paths in a polygonal domain. *Computational Geometry: Theory and Applications*, 45(7):284–293, 2012.
- [14] Jaehwan Ma, Sang Won Bae, and Sunghee Choi. Medial axis point approximation using nearest neighbors. *The Visual Computer*, 28(1):7–19, 2012.
- [13\*] Sang Won Bae, Sunghee Choi, Chunseok Lee, and Shin ichi Tanigawa. Exact algorithms for the bottleneck Steiner tree problem. *Algorithmica*, 61(4):924–948, 2011. On invitation, a special issue for ISAAC 2009.
- [12] Hee-Kap Ahn, Sang Won Bae, Marc J. van Kreveld, Iris Reinbacher, and Bettina Speckmann. Empty pseudo-triangles in point sets. *Discrete Applied Mathematics*, 159(18):2205–2213, 2011.
- [11] Hee-Kap Ahn, Sang Won Bae, Erik D. Demaine, Martin L. Demaine, Sang-Sub Kim, Matias Korman, Iris Reinbacher, and Wanbin Son. Covering points by disjoint boxes with outliers. *Computational Geometry: Theory and Applications*, 44(3):178–190, 2011.
- [10] Sang-Sub Kim, Sang Won Bae, and Hee-Kap Ahn. Covering a point set by two disjoint rectangles. *International Journal of Computational Geometry and Applications*, 21(3):313–330, 2011. On invitation, a special issue for ISAAC 2008.
- [9\*] Sang Won Bae, Chunseok Lee, and Sunghee Choi. On exact solutions to the Euclidean bottleneck Steiner tree problem. *Information Processing Letters*, 110(16):672–678, 2010.
- [8] Hee-Kap Ahn, Helmut Alt, Tetsuo Asano, Sang Won Bae, Peter Brass, Otfried Cheong, Christian Knauer, Hyeon-Suk Na, Chan-Su Shin, and Alexander Wolff. Constructing optimal highways. *International Journal of Foundations of Computer Science*, 20(1):3–23, 2009. On invitation, a special issue for CATS 2007.
- [7] Esther M. Arkin, Sang Won Bae, Alon Efrat, Kazuya Okamoto, Joseph S.B. Mitchell, and Valentine Polishchuk. Geometric stable roommates. *Information Processing Letters*, 109(4):219–224, 2009. Available by doi:10.1016/j.ipl.2008.10.003.
- [6] Sang Won Bae, Jae-Hoon Kim, and Kyung-Yong Chwa. Optimal construction of the city Voronoi diagram. *International Journal of Computational Geometry and Applications*, 19(2):95–117, 2009. On invitation, a special issue for ISAAC 2006.
- [5] Hee-Kap Ahn, Sang Won Bae, Siu-Wing Cheng, and Kyung-Yong Chwa. Casting an object with a core. *Algorithmica*, 54(1):72–88, 2009. Available by doi:10.1007/s00453-007-9120-8.
- [4\*] Sang Won Bae, Chunseok Lee, Hee-Kap Ahn, Sunghee Choi, and Kyung-Yong Chwa. Computing minimum-area rectilinear convex hull and L-shape. *Computational Geometry: Theory and Applications*, 42(9):903–912, 2009.

- [3] Hee-Kap Ahn, Sang Won Bae, Otfried Cheong, and Joachim Gudmundsson. Aperture-angle and Hausdorff-approximation of convex figures. *Discrete & Computational Geometry*, 40:414–429, 2008. Available by doi : 10.1007/s00454-007-9039-5.
- [2] Hee-Kap Ahn, Sang Won Bae, and Otfried Cheong. A new geometric proof on shortest paths of bounded curvature. *Journal of KISS: Computer Systems and Theory*, 34(3–4):132–137, 2007. (in Korean).
- [1] Sang Won Bae and Kyung-Yong Chwa. Voronoi diagrams for a transportation network on the Euclidean plane. *International Journal of Computational Geometry and Applications*, 16(2–3):117–144, 2006. On invitation, a special issue for ISAAC 2004.

### Refereed Conference Papers

- [44] Sang Won Bae, Sergio Cabello, Otfried Cheong, Yoonsung Choi, Fabian Stehn, and Sang Duk Yoon. The reverse kakeya problem. In *Proc. 34th Internat. Sympos. Comput. Geom. (SoCG)*, 2018.
- [43] Hee-Kap Ahn, Taehoon Ahn, Sang Won Bae, Jong Min Choi, Mincheol Kim, Eunjin Oh, Chan-Su Shin, and Sang Duk Yoon. Minimum-width annulus with outliers: Circular, square, and rectangular cases. In *Proc. 12th Internat. Conf. Workshop Algo. Comput. (WALCOM)*, volume 10755 of *LNCS*, pages 44–55, 2018.
- [42] Hee-Kap Ahn, Sang Won Bae, Jong Min Choi, Matias Korman, Wolfgang Mulzer, Eunjin Oh, Ji-won Park, André van Renssen, and Antoine Vigneron. Faster algorithms for growing prioritized disks and rectangles. In *Proc. 28th Internat. Sympos. Algo. Comput. (ISAAC)*, volume 92 of *LIPIcs*, pages 3:1–3:13, 2017.
- [41] Sang Won Bae, Mark de Berg, Otfried Cheong, Joachim Gudmundsson, and Christos Levkopoulos. Shortcuts for the circle. In *Proc. 28th Internat. Sympos. Algo. Comput. (ISAAC)*, volume 92 of *LIPIcs*, pages 9:1–9:13, 2017.
- [40] Sang Won Bae, Jean-François Baffier, Jinhee Chun, Peter Eades, Kord Eickmeyer, Luca Grilli, Seok-Hee Hong, Matias Korman, Fabrizio Montecchiani, Ignaz Rutter, and Csaba D. Tóth. Gap-planar graphs. In *Proc. 25th Internat. Sympos. Graph Drawing and Network Visualization (GD)*, volume 10692 of *LNCS*, pages 531–545, 2017.
- [39] Juyoung Yon, Sang Won Bae, Siu-Wing Cheng, Otfried Cheong, and Bryan T. Wilkinson. Approximating convex shapes with respect to symmetric difference under homotheties. In *Proc. 32nd Internat. Sympos. Comput. Geom. (SoCG)*, volume 51 of *LIPIcs*, pages 63:1–63:15, 2016.
- [38] Sang Won Bae, Matias Korman, Joseph S. B. Mitchell, Yoshio Okamoto, Valentin Polishchuk, and Haitao Wang. Computing the  $l_1$  geodesic diameter and center of a polygonal domain. In *Proc. 33rd Sympos. Theoret. Aspects Computer Sci. (STACS)*, volume 47 of *LIPIcs*, pages 14:1–14:14, 2016.
- [37] Sang Won Bae.  $l_1$  geodesic farthest neighbors in a simple polygon and related problems. In *Proc. 27th Internat. Sympos. Algo. Comput. (ISAAC)*, volume 64 of *LIPIcs*, pages 14:1–14:12, 2016.
- [36] Eunjin Oh, Sang Won Bae, and Hee-Kap Ahn. Computing a geodesic two-center of points in a simple polygon. In *Proc. 12th Latin American Sympos. Theoretical Informatics (LATIN)*, volume 9644 of *LNCS*, pages 646–658, 2016.
- [35] Sang Won Bae, Chan-Su Shin, and Antoine Vigneron. Tight bounds for beacon-based coverage in simple rectilinear polygons. In *Proc. 12th Latin American Sympos. Theoretical Informatics (LATIN)*, volume 9644 of *LNCS*, pages 110–122, 2016.
- [34] Sang Won Bae. Computing a minimum-width square or rectangular annulus with outliers - [extended abstract]. In *Proc. 22nd Internat. Conf. Comput. Combinat. (COCOON)*, volume 9797 of *LNCS*, pages 443–454, 2016.

- [33] Sang Won Bae. Computing a minimum-width square annulus in arbitrary orientation - [extended abstract]. In *Proc. 10th Internat. Workshop Algo. Comput. (WALCOM)*, volume 9627 of *LNCS*, pages 131–142, 2016.
- [32] Sang Won Bae. An almost optimal algorithm for voronoi diagrams of non-disjoint line segments - (extended abstract). In *Proc. 9th Internat. Workshop Algo. Comput. (WALCOM)*, volume 8973 of *LNCS*, pages 125–136, 2015.
- [31] Sang Won Bae, Matias Korman, Yoshio Okamoto, and Haitao Wang. Computing the  $L_1$  geodesic diameter and center of a simple polygon in linear time. In *Proc. 11th Latin American Sympos. Theoretical Informatics (LATIN)*, volume 8392 of *LNCS*, pages 120–131, 2014.
- [30] Sang Won Bae, Matias Korman, and Yoshio Okamoto. Computing the geodesic centers of a polygonal domain. In *Proc. 26th Canadian Conf. Comput. Geom. (CCCG)*, 2014.
- [29] Hee-Kap Ahn, Sang Won Bae, Otfried Cheong, Dongwoo Park, and Chan-Su Shin. Minimum convex container of two convex polytopes under translations. In *Proc. 26th Canadian Conf. Comput. Geom. (CCCG)*, 2014.
- [28] Hee-Kap Ahn, Helmut Alt, Sang Won Bae, and Dongwoo Park. Bundling three convex polygons to minimize area or perimeter. In *Proc. 13th Internat. Sympos. Algo. Data Struct. (WADS)*, volume 8037 of *LNCS*, pages 13–24, 2013.
- [27] Oswin Aichholzer, Sang Won Bae, Luis Barba, Prosenjit Bose, Matias Korman, André van Renssen, Perouz Taslakian, and Sander Verdonschot. Theta-3 is connected. In *Proc. 25th Canadian Conf. Comput. Geom. (CCCG)*, 2013.
- [26] Hee-Kap Ahn, Sang Won Bae, and Wanbin Son. Group nearest neighbor queries in the  $l_1$  plane. In *Proc. 10th Internat. Conf. Theory Appl. Models Comput. (TAMC)*, volume 7876 of *LNCS*, pages 52–61, 2013.
- [25] Sang Won Bae, Yoshio Okamoto, and Chan-Su Shin. Area bounds of rectilinear polygons realized by angle sequences. In *Proc. 23rd Annu. Internat. Sympos. Algo. Comput. (ISAAC)*, volume 7676 of *LNCS*, pages 629–638, 2012.
- [24] Hee-Kap Ahn, Sang Won Bae, and Shin ichi Tanigawa. Rectilinear covering for imprecise input points. In *Proc. 23rd Annu. Internat. Sympos. Algo. Comput. (ISAAC)*, volume 7676 of *LNCS*, pages 309–318, 2012.
- [23] Hee-Kap Ahn, Sang Won Bae, Otfried Cheong, Joachim Gudmundsson, Takeshi Tokuyama, and Antoine Vigneron. A generalization of the convex Kakeya problem. In *Proc. 10th Latin American Sympos. Theoretical Informatics (LATIN)*, volume 7256 of *LNCS*, pages 1–12, 2012.
- [22] Sang Won Bae. Tight bound for farthest-color Voronoi diagrams of line segments. In *Proc. 6th Annu. Workshop Algo. and Comput. (WALCOM)*, volume 7157 of *LNCS*, pages 40–51, 2012.
- [21] Sang Won Bae and Kyung-Yong Chwa. Farthest Voronoi diagrams under travel time metrics - (extended abstract). In *Proc. 6th Annu. Workshop Algo. and Comput. (WALCOM)*, volume 7157 of *LNCS*, pages 28–39, 2012.
- [20] Hee-Kap Ahn, Sang Won Bae, Christian Knauer, Mira Lee, Chan-Su Shin, and Antoine Vigneron. Generating realistic roofs over a rectilinear polygon. In *Proc. 22nd Annu. Internat. Sympos. Algo. Comput. (ISAAC)*, volume 7074 of *LNCS*, pages 60–69, 2011.
- [19] Sang Won Bae, Matias Korman, and Yoshio Okamoto. The geodesic diameter of polygonal domains. In *Proc. 18th Annu. Euro. Sympos. Algo. (ESA), Part 1*, volume 6346 of *LNCS*, pages 500–511, 2010.
- [18] Sang Won Bae and Chan-Su Shin. The onion diagram: A voronoi-like tessellation of a planar line space and its applications - (extended abstract). In *Proc. 21st Annu. Internat. Sympos. Algo. Comput. (ISAAC), Part 2*, volume 6507 of *LNCS*, pages 230–241, 2010.

- [17] Chunseok Lee, Donghoon Shin, Sang Won Bae, and Sunghee Choi. Best and worst-case coverage problems for arbitrary paths in wireless sensor networks. In *Proc. IEEE 7th Internat. Conf. Mobile Adhoc and Sensor Sys. (MASS)*, pages 127–136, 2010.
- [16] Sang Won Bae, Matias Korman, and Takeshi Tokuyama. All farthest neighbors in the presence of highways and obstacles. In *Proc. 3rd Annu. Workshop Algo. and Comput. (WALCOM)*, volume 5431 of *LNCS*, pages 71–82, 2009.
- [15] Sang Won Bae, Chunseok Lee, and Sunghee Choi. On exact solutions to the Euclidean bottleneck Steiner tree problem. In *Proc. 3rd Annu. Workshop Algo. and Comput. (WALCOM)*, volume 5431 of *LNCS*, pages 105–116, 2009.
- [14] Sang Won Bae and Kyung-Yong Chwa. The geodesic farthest-site Voronoi diagram in a polygonal domain with holes. In *Proc. 25th ACM Annu. Sympos. Comput. Geom. (SoCG)*, pages 198–207, 2009.
- [13] Hee-Kap Ahn, Sang Won Bae, Sang-Sub Kim, Matias Korman, Iris Reinbacher, and Wanbin Son. Square and rectangle covering with outliers. In *Proc. 3rd Frontiers of Algorithmics Workshop (FAW)*, volume 5598 of *LNCS*, pages 132–140, 2009.
- [12] Hee-Kap Ahn, Sang Won Bae, and Iris Reinbacher. Optimal empty pseudo-triangles in a point set. In *Proc. 21st Canadian Conf. Comput. Geom. (CCCG)*, pages 5–8, 2009.
- [11] Sang Won Bae, Sunghee Choi, Chunseok Lee, and Shin-ichi Tanigawa. Exact algorithms for the bottleneck Steiner tree problem. In *Proc. 20th Annu. Internat. Sympos. Algo. Comput. (ISAAC)*, volume 5878 of *LNCS*, pages 24–33, 2009.
- [10] Sang Won Bae and Yoshio Okamoto. Querying two boundary points for shortest paths in a polygonal domain. In *Proc. 20th Annu. Internat. Sympos. Algo. Comput. (ISAAC)*, volume 5878 of *LNCS*, pages 1054–1063, 2009.
- [9] Hee-Kap Ahn and Sang Won Bae. Covering a point set by two disjoint rectangles. In *Proc. 19th Annu. Internat. Sympos. Algo. Comput. (ISAAC)*, volume 5369 of *LNCS*, pages 728–739, 2008.
- [8] Hee-Kap Ahn, Helmut Alt, Tetsuo Asano, Sang Won Bae, Peter Brass, Otfried Cheong, Christian Knauer, Hyeon-Suk Na, Chan-Su Shin, and Alexander Wolff. Constructing optimal highways. In *Proc. Thirteenth Computing: The Australasian Theory Symposium (CATS)*, volume 65 of *CRPIT*, pages 7–14, 2007.
- [7] Hee-Kap Ahn, Sang Won Bae, Otfried Cheong, and Joachim Gudmundsson. Aperture-angle and hausdorff-approximation of convex figures. In *Proc. 23rd ACM Annu. Sympos. Comput. Geom. (SoCG)*, pages 37–45, 2007.
- [6] Sang Won Bae, Chunseok Lee, Hee-Kap Ahn, Sunghee Choi, and Kyung-Yong Chwa. Maintaining extremal points and its applications to deciding optimal orientations. In *Proc. 18th Annu. Internat. Sympos. Algo. Comput. (ISAAC)*, volume 4835 of *LNCS*, pages 788–799, 2007.
- [5] Sang Won Bae, Jae-Hoon Kim, and Kyung-Yong Chwa. Optimal construction of the city Voronoi diagram. In *Proc. 17th Annu. Internat. Sympos. Algo. Comput. (ISAAC)*, volume 4288 of *LNCS*, pages 182–192, 2006.
- [4] Changbum Park, Sang Won Bae, Jong Bhak, and Sunghee Choi. Watertight boundary detection of domain-domain interface surfaces. In *Proc. 2nd Internat. Sympos. Voronoi Diagrams in Science and Engineering (ISVD)*, pages 257–268, 2005.
- [3] Sang Won Bae and Kyung-Yong Chwa. Shortest paths and Voronoi diagrams with transportation networks under general distances. In *Proc. 16th Annu. Internat. Sympos. Algo. Comput. (ISAAC)*, volume 3827 of *LNCS*, pages 1007–1018, 2005.
- [2] Hee-Kap Ahn, Sang Won Bae, Siu-Wing Cheng, and Kyung-Yong Chwa. Casting an object with a core. In *Proc. 16th Annu. Internat. Sympos. Algo. Comput. (ISAAC)*, volume 3827 of *LNCS*, pages 40–49, 2005.



- [1] Sang Won Bae and Kyung-Yong Chwa. Voronoi diagrams with a transportation network on the Euclidean plane. In *Proc. 15th Annu. Internat. Sympos. Algo. Comput. (ISAAC)*, volume 3341 of *LNCS*, pages 101–122, 2004.

## **Skills**

### **Programming Languages**

C, C++, Java, MATLAB, ML, PROLOG, LISP

### **Spoken Languages**

Korean(*native*), English, Japanese

March 7, 2018