# Sang Won Bae

***Curriculum Vitae***

## Contact

*Professor*

Division of Artificial Intelligence and Computer 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, bioinformatics, and other CS fields

## Professional Experiences

| | |
|---|---|
| 3/2021–current | Professor<br>Division of AI Computer Science and Engineering, Kyonggi University, Suwon, Korea |
| 3/2016–2/2021 | Associate Professor<br>Division of Computer Science and Engineering, Kyonggi University, Suwon, Korea |
| 3/2010–2/2016 | Assistant Professor<br>Department of Computer Science, Kyonggi University, Suwon, Korea |
| 3/2009–2/2010 | Research Assistant Professor<br>Department of Computer Science and Engineering, POSTECH, Pohang, Korea |
| 3/2008–2/2009 | Postdoctoral Researcher<br>Division of Computer Science, Korea Advanced Institute of Science and Technology, Daejeon, Korea |

## Educational Qualifications

*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*

## Teaching Experiences

3/2010–current Assistant Professor; Associate Professor; Professor
Department of Computer Science, Kyonggi University, Suwon, Korea
Algorithms; 2011, 2013, 2014, 2015, 2017–2022
Theory of Computation; 2013, 2014, 2015, 2017–2022
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

## Honors and Awards

August 2020 *Outstanding Research Award*, Kyonggi University

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

## Professional Activities

Journal Editorship

Editor, *Computational Geometry – Theory and Applications*, Elsevier, 2019 – current
Guest Editor, Special Issue on ISAAC 2022 of CGTA, Elsevier, 2022–2023
Guest Editor, Special Issue "Frontiers in Computational Geometry", *MDPI Symmetry*, MDPI, 2021

Board Member

Board Member, *Asian Association for Algorithms and Computation*, 2016–current
Review Board Member, *National Research Foundation of Korea*, November 2022–August 2024
Board Member, *The Korean Committees for International Olympiad for Informatics (IOI)*, 2013–current
Committee Member and Judge, *ACM International Collegiate Programming Contest (ICPC) Asia Regional – Seoul*, 2010–current

Conference Program Committee

PC Co-Chair of ISAAC 2022 (The 33rd International Symposium on Algorithms and Computation)
SoCG 2022 (The 38th International Symposium on Computational Geometry)
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

Co-Organizer, KWCG 2023, July 3–7, Koh Samui, Thailand
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*
*Discrete & Computational Geometry*
*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*
several Korea domestic journals

Referee (Conferences)

SoCG (2008–2019), ISAAC (2006–2009, 2011–2015, 2020, 2021), ESA (2008, 2011), ICALP (2012, 2013), WADS (2011, 2013, 2017), SWAT (2018), EuroCG(2020) 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

Lifetime Member, *Korean Institute of Information Scientists and Engineers*, 2009–current
Member, *The Institute of Electronics, Information and Communication Engineers*, Japan, 2018–current
Student Member, *Association for Computer Machinery*, 2007
Student Member, *Korea Information Science and Society*, 2004–2007

## Research Grants

(*Remark*: NRF = National Research Foundation of Korea)

06/2018–05/2023 NRF Basic Research Program (NRF-2018R1D1A1B07042755)
*Study on Computational Complexity and Algorithms for Unsolved Geometric Location Problems*
250,000,000 KRW (about 230,000 USD equivalent)

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)

06/2022–05/2023 Kyonggi University Research Grant
*Optimal Algorithm for the Minimum-Width Cubic Shell Problem*
7,500,000 KRW (about 6,500 USD equivalent)

06/2022–05/2023 Kyonggi University Research Grant
*Counting Monotone Polygons and Holes in a Planar Point Set*
3,900,000 KRW (about 3,500 USD equivalent)

06/2021–05/2022 Kyonggi University Research Grant
*Counting Non-convex 5-Holes in a Planar Point Set*
7,500,000 KRW (about 6,500 USD equivalent)

06/2021–05/2022 Kyonggi University Research Grant
*On the Minimum-Area Parallelogram Annulus Problem*
7,500,000 KRW (about 6,500 USD equivalent)

06/2020–05/2021 Kyonggi University Research Grant
*Faster Counting Empty Convex Polygons in Planar Point Sets*
7,500,000 KRW (about 6,500 USD equivalent)

06/2020–05/2021 Kyonggi University Research Grant
*Minimum-Width Parallelogram Annulus with Given Angles*
3,900,000 KRW (about 3,500 USD equivalent)

06/2019–05/2020 Kyonggi University Research Grant
*Minimum-width double-strip and parallelogram annulus*
10,000,000 KRW (about 9,000 USD equivalent)

06/2019–05/2020 Kyonggi University Research Grant
*Minimum-Width Cuboidal Shells with Outliers*
5,500,000 KRW (about 4,500 USD equivalent)

06/2018–05/2019 Kyonggi University Research Grant
*Computing a Minimum-Width Cubid and Hypercubic Shell*
10,000,000 KRW (about 9,000 USD equivalent)

06/2018–05/2019 Kyonggi University Research Grant
*On the Minimum-Area Rectangular and Square Annulus Problem*
10,000,000 KRW (about 9,000 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)

## Publications

### Journal Articles

(*Remark*: (*) Corresponding author)

[60*] Sang Won Bae and Sang Duk Yoon. Empty squares in arbitrary orientation among points. *Algorithmica*, Online First (2022), Available via `https://doi.org/10.1007/s00453-022-01002-1`.

[59] Taehoon Ahn, Jongmin Choi, Chaeyoon Chung, Hee-Kap Ahn, Sang Won Bae, and Sang Duk Yoon. Rearranging a sequence of points onto a line. *Computational Geometry: Theory and Applications*, 107:101887, 2022.

[58*] Sang Won Bae. Faster counting empty convex polygons in a planar point set. *Inf. Process. Lett.*, 175:106221, 2022.

[57*] Sang Won Bae. On the minimum-area parallelogram annulus problem. *Symmetry*, 14(2):359, 2022.

[56*] Young-Hun Sung and Sang Won Bae. Counting non-convex 5-holes in a planar point set. *Symmetry*, 14(1):78, 2022.

[55] Sang Won Bae, Sergio Cabello, Otfried Cheong, Yoonsung Choi, Fabian Stehn, and Sang Duk Yun. The reverse Kakeya problem. *Advances in Geometry*, 21(1):75–84, 2021.

[54] Sang Won Bae, Arpita Baral, and Priya Ranjan Sinha Mahapatra. Maximum-width empty square and rectangular annulus. *Computational Geometry: Theory and Applications*, 96:101747, 2021.

[53*] Sang Won Bae. On the minimum-area rectangular and square annulus problem. *Computational Geometry: Theory and Applications*, 92:101697, 2021.

[52*] Young-Hun Sung and Sang Won Bae. Counting convex and non-convex 4-holes in a point set. *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, E104-A(9):1094–1100, 2021.

[51*] Sang Won Bae. Minimum-width parallelogram annulus with given angles. *Journal of Computing Science and Engineering*, 16(2):78–83, 2021.

[50*] Sang Won Bae. Minimum-width double-strip and parallelogram annulus. *Theoretical Computer Science*, 833:133–146, 2020.

[49*] Sang Won Bae. Minimum-width cuboidal shells with outliers. *Journal of Computing Science and Engineering*, 14(1):1–8, 2020.

[48*] Sang Won Bae. $l_1$ geodesic farthest neighbors in a simple polygon and related problems. *Discrete & Computational Geometry*, 62(4):743–774, 2019.

[47*] Sang Won Bae, Yoshio Okamoto, and Chan-Su Shin. Area bounds of rectilinear polygons realized by angle sequences. *Computational Geometry: Theory and Applications*, 83:9–29, 2019.

[46] Sang Won Bae and Michiel H. M. Smid. Closest-pair queries in fat rectangles. *Computational Geometry: Theory and Applications*, 83:1–8, 2019.

[45] Eunjin Oh, Sang Won Bae, and Hee-Kap Ahn. Computing a geodesic two-center of points in a simple polygon. *Computational Geometry: Theory and Applications*, 82:45–59, 2019.

[44*] Sang Won Bae, Chan-Su Shin, and Antoine Vigneron. Tight bounds for beacon-based coverage in simple rectilinear polygons. *Computational Geometry: Theory and Applications*, 80:40–52, 2019.

[43] 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. *Computational Geometry: Theory and Applications*, 80:23–39, 2019.

[42] Sang Won Bae, Mark de Berg, Otfried Cheong, Joachim Gudmundsson, and Christos Levcopoulos. Shortcuts for the circle. *Computational Geometry: Theory and Applications*, 79:37–54, 2019.

[41] 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*, 77:40–50, 2019. On invitation, a special issue for CCCG 2014.

[40*] Sang Won Bae, Matias Korman, and Yoshio Okamoto. Computing the geodesic centers of a polygonal domain. *Computational Geometry: Theory and Applications*, 77:3–9, 2019. On invitation, a special issue for CCCG 2014.

[39*] Sang Won Bae. Computing a minimum-width square or rectangular annulus with outliers. *Computational Geometry: Theory and Applications*, 76:33–45, 2019.

[38] Sang Won Bae and Haitao Wang. $l_1$ shortest path queries in simple polygons. *Theoretical Computer Science*, 790:105–116, 2019.

[37*] Sang Won Bae. Computing a minimum-width cubic and hypercubic shell. *Operations Research Letters*, 47(5):398–405, 2019.

[36*] 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. *Information Processing Letters*, 145:16–23, 2019.

[35] 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. Covering points with convex sets of minimum size. *Theoretical Computer Science*, 745:36–52, 2018.

[34] 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*, 718:14–23, 2018. On invitation, a special issue for WALCOM 2016.

[33*] Sang Won Bae. Computing a minimum-width square annulus in arbitrary orientation. *Theoretical Computer Science*, 718:2–13, 2018. 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 L1 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 Geoetry: 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 Geoetry: 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 Okamota, 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**

[50] Jaehoon Chung, Sang Won Bae, Chan-Su Shin, Sang Duk Yoon, and Hee-Kap Ahn. Inscribing or circumscribing a histogon to a convex polygon. In *Proc. 42nd IARCS Annu. Conf. Found. Software Tech. Theoretical Comput. Sci. (FSTTCS)*, LIPIcs, pages 39:1–39:17, 2022.

[49] Jaehoon Chung, Sang Won Bae, Chan-Su Shin, Sang Duk Yoon, and Hee-Kap Ahn. Approximating convex polygons by histogons. In *Proc. 34th Canadian Conf. Comput. Geom. (CCCG)*, pages 75–82, 2022.

[48] Taehoon Ahn, Jongmin Choi, Chaeyoon Chung, Hee-Kap Ahn, Sang Won Bae, and Sang Duk Yoon. Rearranging a sequence of points onto a line. In *Proc. 33rd Canadian Conf. Comput. Geom. (CCCG)*, pages 36–46, 2021.

[47] Sang Won Bae and Sang Duk Yoon. Empty squares in arbitrary orientation among points. In *Proc. 36th Internat. Sympos. Comput. Geom. (SoCG)*, volume 164 of *LIPIcs*, pages 13:1–13:17, 2020.

[46] Sang Won Bae. Minimum-width double-strip and parallelogram annulus. In *Proc. 30th Internat. Sympos. Algo. Comput. (ISAAC)*, volume 149 of *LIPIcs*, pages 25:1–25:14, 2019.

[45] Sang Won Bae, Arpita Baral, and Priya Ranjan Sinha Mahapatra. Maximum-width empty square and rectangular annulus. In *Proc. 13th Internat. Workshop Algo. Comput. (WALCOM)*, volume 11355 of *LNCS*, pages 69–81, 2019.

[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 Levcopoulos. 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.

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## Skills

**Programming Languages**
C, C++, Java, MATLAB, ML, PROLOG, LISP

**Spoken Languages**
Korean(*native*), English, Japanese

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