Hee-Kap Ahn *Professor; Vice President, Office of Planning*

안희갑 (安熙甲)

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Research Interest

*I am interested in most areas of **algorithms**, especially in **computational geometry**, a field of computer science devoted to the study of design and analysis of algorithms for geometry and optimization problems.* **Computational geometry** has received a great amount of attention of a vast number of researchers in computer science, as it has many application areas with interest in geometric computing, such as computer aided (geometric) design, computer aided manufacturing, robotics, computer graphics, virtual reality, computer vision, bioinformatics (computational biology) and geographic information systems.

I have been working on **approximation algorithms** for geometric optimization problems, that is, an interesting paradigm for the design of algorithms that returns near-optimal solutions efficiently. Most natural optimization problems, including those arising in important application areas, are NP-hard, therefore, their exact solution is prohibitively time consuming and research into approximability of these problems becomes a compelling subject in computer science. Approximation algorithms are often surprisingly simple yet practical and efficient.

I have also been working on **shape matching** and **shape analysis**. Shape matching is the study of algorithms to compute the similarity between shapes, and it is an important ingredient in shape retrieval from a large database, shape recognition, classification, alignment and registration, and shape approximation and simplification. In shape analysis, we are interested in the structural and combinatorial properties of a shape, such as the location of its (geodesic) center, the subdivision of a shape with respect to sites under geodesic metric, and the smallest/largest figures containing or contained in a shape. Another interesting problem is maintaining geometric structures such as the convex hulls and the Voronoi diagrams of points in a shape in dynamic environments.

I also have a keen interest in **nearest-neighbor search (NNS)** in high dimensions, which has applications in **computer vision** and **artificial intelligence**.

Professional Experience

Pohang University of Science and Technology — Pohang, Korea

Professor — *Sep '16 – Now*
Department of Computer Science and Engineering

Professor — *Mar '20 – Now*
Graduate School of Artificial Intelligence

Vice President (기획처장) — *Sep '23 – Now*
Office of Planning, POSTECH

Mueunjae Endowed Chair Professor — *Jun '19 – Aug '23*
(무은재(無垠齋) 석좌교수)

Vice Director — *Sep '22 – Aug '23*
Institute of Artificial Intelligence, POSTECH

Vice President (학술정보처장) — *Sep '19 – Aug '21*
Office of Academic Information Affairs, POSTECH

Director *Jun '19 – Feb '21*
Machine Learning Research Center, POSTECH

Adjunct Professor *Sep '08 – Aug '24*
Department of Mathematics

Associate Professor *Sep '10 – Aug '16*
Department of Computer Science and Engineering

Assistant Professor *Jul '07 – Aug '10*
Department of Computer Science and Engineering

Sejong University — Seoul, Korea

Assistant Professor *Mar '06 – Jul '07*
Department of Computer Science and Engineering

Korea Advanced Institute of Science and Technology — Daejeon, Korea

Research Assistant Professor *Feb '04 – Feb '06*
Computer Science Division - replacement of military service.

Korea Institute of Science and Technology — Seoul, Korea

Scientific Researcher *Oct '01 – Jan '04*
Imaging Media Research Center - replacement of military service.

Educational Qualifications

Utrecht University — Utrecht, The Netherlands

Ph.D. in Computer Science with a topic in Theoretical Computer Science *December 2001*
Title of thesis : *Geometric Aspects of the Casting Process*
Dissertation committee : Professors Jan van Leeuwen (chair), Mark Overmars (advisor), Otfried Cheong (co-advisor), Mark de Berg, Prosenjit Bose, Siu-Wing Cheng, Peter van Emde Boas, Doaitse Swierstra, Arno Siebes

Pohang University of Science and Technology — Pohang, Korea

Master of Science degree in Computer Science *February 1998*
Title of thesis : *Casting with two-part cast: Opposite and Non-opposite cast removal*
Dissertation committee : Professors Otfried Schwarzkopf (advisor), Mark de Berg, Myung-Soo Kim

Kyungpook National University — Daegu, Korea

Bachelor of Engineering degree in Computer Engineering *February 1996*

Professional Activities

Workshops and Seminars:

- Keynote talk at FAW 2022 (The 16th Conference on Frontiers of Algorithmic Wisdom), Hong Kong (2022)
- Invited talk at MINDS (Mathematical Institute for Data Science), Korea (2022)
- Contributed talk at SWCS 2021 (Software Convergence Symposium), Korea (2021)
- Invited talk at School of Computer Science and Engineering, UNIST, Korea (2021) *On-line.*
- Banff International Research Station - Combinatorial and Geometric Discrepancy (20w5141) (2020) *On-line.*
- Banff International Research Station - Optimal Transport and Analysis for Machine Learning (20w5126) (2020) *Cancelled due to Covid-19 pandemic.*
- Invited talk at 13th Annual Meeting of the Asian Association for Algorithms and Computation (AAAC 2020), Nara, Japan (2020) *Cancelled due to Covid-19 pandemic.*

- Invited talk at Theoretische Informatik Abteilung I, University of Bonn, Germany (2019)
- Invited lectures at Department of Informatics, Kyushu University, Japan (2019)
- Japan-Austria Workshop on Computational Geometry at Zao Resort, Japan (2018)
- Korean Workshop on Computational Geometry at Rogla, Slovenia (2018)
- Invited talk at 14th International Conference on Computability and Complexity in Analysis, Korea (CCA 2017)
- Invited talk at the Workshop on Extreme-Scale Computing for Big Data Analytics, Australia (2016)
- Invited talk at SoC Colloquium of KAIST (2016)
- NII Shonan Meeting on Algorithmics for Beyond Planar Graphs, Shonan Center, Japan (2016)
- Invited talk at the AEARU Web Technology and Computer Science Workshop, Japan (AEARU-WTCS 2016)
- NII Shonan Meeting on Theory and Applications of Geometric Optimization, Shonan Center, Japan (2016)
- Korean Workshop on Computational Geometry (& Graph Drawing), Würzburg, Germany (2016)
- Invited Seminar Talk at School of ECE, UNIST (2015)
- Invited talk at "Saturday Science Lecture" by Seoul Metropolitan Office of Education, Korea (2015)
- Japan-Korea Joint Workshop on General Optimization: Polygon containment, packing, alignment, Zao resort, Japan (2015)
- Invited talk at "Science Touch on Friday" by NRF, Korea (2014)
- Invited talk at Geometry Seminar, Courant Institute of Mathematical Sciences, New York University, United States (2014)
- Invited talk at Dept. Computer Science and Engineering, Seoul National University, Korea (2014)
- Korean Workshop on Computational Geometry at Hiddensee Island, Germany (2014)
- Barbados workshop on Geometry and Graphs, Barbados (2014)
- Invited Talk at the 16th Korea-Japan Joint Workshop on Algorithms and Computation (2013)
- Japan-Korea Joint Workshop on Optimized Extraction of Geometric Information, Yamagata, Japan (2012)
- Korean Workshop on Computational Geometry at Hokkaido, Japan (2011)
- Korean Workshop on Computational Geometry at Dagstuhl, Germany (2010)
- Invited Lectures at Winter School on Algorithms and Combinatorics (2010)
- Invited talk at Colloquium of Dept. Computer Science, Bayreuth Univ., Germany (2010)
- Invited talk at KAIST Discrete Math Seminar, KAIST (2009)
- Dagstuhl Seminar on Geometric Networks, Germany (2009)
- Invited talk at Colloquium of Dept. Computer Science & Engineering, Chonbuk Univ. (2009)
- Talk at PMI Phylogenetic Combinatorics Seminar, POSTECH (2009)
- International Workshop on Discrete and Computational Geometry (2009)
- Talk at The 30th PNU-PMI Algebraic Combinatorics Seminar, PNU (2009)
- NICTA Workshop on Computational Geometry, Sydney, Australia (2008)
- Invited talk at Colloquium of Dept. Computer Science & Engineering, POSTECH (2006/2007)
- Dagstuhl Seminar on Geometric Networks and Metric Space Embeddings (2006) in Germany
- Workshop on Computational and Combinatorial Line Geometry (2006) in France(Ouessant Island)
- Invited talk at School of Computational Sciences, KIAS (2005)

- International Workshop on Discrete and Computational Geometry (2005) in Japan
- Colloquium of Dept. Computer Science & Engineering in POSTECH (2004)
- Dagstuhl Workshop on Computational Geometry and Geometric Networks (2004) in Germany
- Invited talk at Voronoi diagram Research Center in Hanyang University (2004)
- Invited talk at Dept. Computer Engineering in Kyungpook National University (2004)
- Korean Workshop on Computational Geometry (2002 – 2009)
- Dagstuhl Seminar on Computational Geometry (2001 and 2003) in Germany
- Utrecht Workshop on Computational Geometry (2000) in The Netherlands
- Workshop on Computational Geometry at HKUST (1997) in Hong Kong

Board / Advisory Committee members:
- International Symposium on Algorithms and Computation (ISAAC), since 2019.
- Asian Association for Algorithms and Computation (AAAC), since 2007.

Journal editorship: I am currently an editorial board member of
- CoEditor-in-Cheif of Computational Geometry : Theory and Applications (CGTA) (2020–)
- Computational Geometry : Theory and Applications (CGTA) (2015–)
- Interdisciplinary Information Sciences (IIS) (2013–)
- Journal of Information Processing (JIP) (2012–2018)
- Journal of Discrete Algorithms (JDA) (2015–2018)
- Journal of Computational Geometry (JoCG) (2009–2012)
- Journal of Information Science and Engineering (JISE) (2011-2017)

Program committees: PC co-chair of
- ISAAC 2021 (32nd International Symposium on Algorithms and Computation)
- ISAAC 2014 (25th International Symposium on Algorithms and Computation)

PC member of
- SoCG[1] 2010 (26th) / 2014 (30th) / 2019 (35th): Annual Symposium on Computational Geometry
- WADS 2017: Algorithms and Data Structures Symposium
- ICALP 2015: 42nd International Colloquium on Automata, Languages, and Programming
- MFCS 2015: 40th International Symposium on Mathematical Foundation of Computer Science
- COCOON 2011 (17th) / 2013 (19th) / 2015 (21st) : Annual International Computing and Combinatorics Conference
- ISAAC 2006 (17th) / 2013 (24th): Annual International Symposium on Algorithms and Computation
- EuroCG 2019 (35th): European Workshop on Computational Geometry
- FAW 2009 / 2015 / 2016 / 2018: International Frontiers of Algorithmics Workshop
- AAIM 2006 / 2007 / 2014 : Annual International Conference on Algorithmic Aspects in Information and Management
- CCCG 2013: 25th Canadian Conference on Computational Geometry

[1] SoCG is the top conference in computational geometry.

- FAW-AAIM 2011 / 2013: Joint Meeting of International Frontiers of Algorithmics Workshop and International Conference on Algorithmic Aspects of Information and Management
- WALCOM 2011 / 2012 / 2014 / 2018 / 2020: International Workshop on Algorithms and Computation
- CATS 2011: 17th Computing: the Australasian Theory Symposium
- AAAC 2008–2020: Asian Association for Algorithms and Computation

Refereeing: I have been a referee for journals, mainly in the field of computational geometry, including

- Computational Geometry: Theory and Applications (CGTA)
- Algorithmica
- Discrete Computational Geometry (DCG)
- International Journal of Computational Geometry and Applications (IJCGA)
- Journal of Discrete Algorithms (JDA)
- Computer Aided Geometric Design (CAGD)
- Computers & Graphics
- Mathematics of Operations Research
- International Journal on Foundations of Computer Science
- European Journal of Operational Research
- Journal of Combinatorial Optimization (JoCO)
- GeoInformatika (GEIN)

Sub-Refereeing for conferences:

- ACM Symposium on Computational Geometry (SoCG),
- ACM-SIAM Symposium on Discrete Algorithms (SODA),
- ACM Symposium on Theory of Computing (STOC),
- European Symposium on Algorithms (ESA),
- International Symposium on Algorithms and Computation (ISAAC),
- International Computing and Combinatorics Conference (COCOON),
- IFIP International Conference on Theoretical Computer Science (IFIP TCS), and
- AAAC Annual Meeting (AAAC).

Organizing chairs:

- Fall Workshop on Algorithms and Computation (FWAC 2018). Seoul National University, Seoul, Korea. November 9–10, 2018.
- NII Shonan Meeting on "Geometric Graphs: Theory and Applications" (No. 106) *with Naoki Katoh and Subhas C. Nandy.* Shonan Village Center, Japan, October 30–November 2, 2017.
- Aslla Symposium on "Space Tessellation and Packing: Theory and Applications" (No. 2) *with Otfried Cheong and Christian Knauer.* KIST Gangneung, Korea. September 19–22, 2017.
- Fall Workshop on Algorithms and Computation (FWAC 2016) *with Yo-Sub Han and Heejin Park.* Yonsei University, Seoul, Korea. November 11–12, 2016.
- ISAAC 2014 (25th International Symposium on Algorithms and Computation (ISAAC 2014) *with Chan-Su Shin.* Jeonju, Korea. December 15–17, 2014.

Organizing committee members:

- 23rd ACM Symposium on Computational Geometry (SoCG) 2007, Gyeongju, South Korea.
- 16th ACM Symposium on Computational Geometry (SoCG) 2000, Hong Kong.
- Korean workshop on computational geometry (KWCG). I started and organized an international workshop on Computational Geometry in Jeju island in August 2002, and in Seoul in August 2003 (together with Dr. Chan-Su Shin). Since then it became an annual event under this name. I organize it again in 2008 at POSTECH, with Otfried Cheong and Antoine Vigneron.
- Dagstuhl Workshop on Computational Geometry and Geometric Networks, Germany. 2004 (with Alexander Wolff, Christian Knauer, René van Oostrum and Chan-Su Shin.)

Other activities:

- I am a committee member of International Olympiad in Informatics at KIESE (2013–2016, 2018–now)

Grants and Awards

Research grants:

- *Software Star Lab.* Optimal Data Structures and Algorithmic Applications in Dynamic Geometric Environment (2017/04/01 - 2024/12/31) - 2,400,000 USD
- *Samsung Electronics.* Algorithms for automatic wiring in PCBs. (2020, 2022) - 130,000 USD
- *Science Research Center (SRC-NRF).* Surface Matching and Space Tessellations (2011/09/06 - 2018/08/31) - 1,260,000 USD
- *Hyundai Elevator Research Center.* Efficient algorithms for smart elevator call allocation system (2014/10/01-2015/5/31) - 70,000 USD
- *National Research Foundation.* Adaptive Computational Geometry (2009/05/01 - 2012/04/30) - 150,000 USD
- *National Research Foundation.* Algorithmic Aspects of Geometric Uncertainty (2010/05/01 - 2013/04/30) - 150,000 USD
- *NRF/JSPS Korea-Japan binational Research Grant.* Finding objects in geometric data: Theoretical algorithms for geometric matching, segmentation and covering (2010/07/01 -2012/06/30) - 24,000 USD
- *Hyundai Mobis Research Center.* Fast and Stable algorithms for path finding (2009/12/1 - 2010/11/31) - 50,000 USD
- *Postech BSRI.* Geometric Shape Approximation and Matching (2008/5/1 - 2009/2/28) - 20,000 USD
- *KRF/DAAD Korea-Germany Binational Research Grant.* - GEnKO : Korea-Germany Partnership Program Geometric Shape Approximation (2008/1/1 - 2010/12/31) - 26,000 USD
- *Korea Research Foundation.* Geometric Shape Matching in 3D: Design of efficient matching algorithms under rigid motions (2007/8/1 - 2009/7/31) - 40,000 USD
- *Postech BSRI.* Geometric Shape Matching (2007/9/1 - 2008/2/28) - 20,000 USD
- *Korea Research Foundation.* Approximation algorithms for shape matching in 3 dimensional space (2006/7/1 - 2007/6/30) - 20,000 USD

Awards:

- Mueunjae Endowed Chair Professor (2019-2023)
- POSTECH Education Award (2017)
- Excellent Paper/Presentation Award at KIESE/KCC Conferences (2011/2012/2013/2015)
- Best Paper Award at 11th International Symposium on Spatial and Temporal Databases (SSTD 2009)
- Research Fellowship(AIO) from Utrecht University, The Netherlands
- Postgraduate Scholarships from Hong Kong University of Science & Technology and Pohang University of Science & Technology
- Scholarship for academic excellence from Kyungpook National University

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Educational Experience

Ph.D. students I supervised:

- Dr. Wanbin Son (2014), Placement: Scientific researcher at KERI, Korea.
  Thesis: Geometric Algorithms for Geospatial Data: Skyline and Top-k Queries.
- Dr. Hyesun Lee (2015), Placement: Researcher at ETRI, Korea.
  Thesis: A Feature Model-based Method for Systematic Maintenance and Evolution of Product Lines.
- Taesung Lee (2015), Placement: Researcher at IBM Research AI
  Thesis: Knowledge Base Enrichment with Entities, Attributes, and Concepts
- Dr. Sang-Sub Kim (2016), Placement: Postdoctoral researcher at Bonn University, Germany.
  Thesis: Euclidean Centers of Streaming and Imprecise Points.
- Sanghoon Lee (2016), Placement: Researcher at NAVER
  Thesis: Knowledge Base Alignment: Enlarging Machine-readable Web
- Jinwoo Park (2016), Placement: Researcher at Meta
  Thesis:
- Dr. Dongwoo Park (2017), Placement: Researcher at Samgsung SDS, Korea.
  Thesis: Bundling Problems in Geometric Optimization.
- Dr. Yoonho Hwang (2018), Placement: CEO of a company, Korea.
  Thesis: Fast Proximity Search Algorithms on the Euclidean Space.
- Dr. Eunjin Oh (2018), Placement: Assistant Professor at POSTECH, Korea.
  Thesis: Geometric Structures on Points inside a Simple Polygon.
- Dr. Sang Duk Yoon (2018), Placement: Assistant Professor at Sungshin Women's University, Korea.
  Thesis: Geometric Matching Algorithms for Terrain Data.
- Hyunsuk Cho (2018)
  Thesis: Event Understanding from Social Media and Personal Media
- Jinyoung Yeo (2018), Placement: Professor at Yonsei University
  Thesis: Overcoming Sparseness in Knowledge Bases: Harvesting, Integration, and Translation
- Sunghwan Kim (2020), Placement: Researcher at NAVER
  Thesis: Hardware-aware Optimization of List Intersection in Web Search
- Mincheol Kim (2022), Placement: Samsung SDS, Korea.
  Thesis: Path Optimization Problems in Modest Rectilinear Environment.
- Jongmin Choi (2023), Placement: CryptoLab, Korea.
  Thesis: Optimal Planar Covering with Congruent Disks.

MSc students I supervised:

- Wanbin Son (2010)
  Thesis: Skyline Queries in Metric Space.
- Sang-Sub Kim (2010)
  Thesis: Covering Problems on a Point Set.
- Bingbing Zhuang (2013)
  Thesis: A Representative Curve of k Curves with Respect to Fréchet Distance.
- Min-Gyu Kim (2016)
  Thesis: Geometric Matching of Terrains: Algorithmic Analysis and Implementation.
- Seungjoon Lee (2019)
  Thesis: Efficient Algorithms for Stacking Polytopes
- Byeonguk Kang (2021)
  Thesis: Locating Two Centers for Imprecise Points

- Hwi Kim (2021)
  Thesis: Rectangular Partitions of a Rectilinear Polygon
- Dahye Jeong (2022)
  Thesis: The Two-Center Problem for Convex Polygons
- Chanyang Seo (2023)
  Thesis: Shortest Paths Between Line Segments in the Presence of Rectangular Obstacles
- Jiwoo Park (2023)
  Thesis: Elastic Geometric Shape Matching Algorithms for Neighborhood Trees and Cycles under Translations

Teaching experience:

- *Graph Theory and Algorithms* – CSED436 (2012–)
- *Discrete and Computational Geometry* – CSED508(was EECE508) (2011–)
- *Randomized Algorithms* – EECE701D (2011)
- *Algorithms* – CSED331 (2010–)
- *Approximation Algorithms* – EECE701C (2010)
- *Discrete Geometry* – EECE701B (2009)
- *Computational Geometry* – EECE701A (2008)
- *Research Project A/II* – CSED499 (2008)
- *Algorithm Design and Analysis* – CSED431 (2007/2008/2009)

Scientific Contributions

International Journal articles

71. Jaehoon Chung, Sang Won Bae, Chan-Su Shin, Sang Duk Yoon, Hee-Kap Ahn.
Largest Unit Rectangles Inscribed in a Convex Polygon.
Submitted.

70. Hwi Kim, Jaegun Lee, Hee-Kap Ahn.
Uniformly monotone partitioning of polygons.
Submitted.

69. Taekang Eom, Hee-Kap Ahn.
A linear-time algorithm for the center problem in weighted cycle graphs.
Submitted.

68. Taekang Eom, Seungjun Lee, Hee-Kap Ahn.
Largest similar copies of convex polygons amidst polygonal obstacles.
Submitted.

67. Mook Kwon Jung, Sang Duk Yoon, Hee-Kap Ahn, Takeshi Tokuyama.
Universal convex covering problems under translation and discrete rotations.
Accepted for publications in Advances in Geometry

66. Jaewook Huh, Jing Liu, Jae-Hun Yu, Yoon Jeong Choi, Hee-Kap Ahn, Chooryung J. Chung, Jung-Yul Cha.
Three-dimensional evaluation of a virtual setup considering the roots and alveolar bone in molar distalization cases.
Scientific Reports, 13, 14955, 2023.

65. Mincheol Kim, Chanyang Seo, Taehoon Ahn, Hee-Kap Ahn.
Farthest-point Voronoi diagrams in the presence of rectangular obstacles. (SharedIt)
Algorithmica., 85(8), pages 2214–2237, 2023.

64. Jae-Hun Yu, Ji-Hoi Kim, Jing Liu, Utkarsh Mangal, Hee-Kap Ahn, Jung-Yul Cha.
Reliability and time-based efficiency of artificial intelligence-based automatic digital model analysis system.
European Journal of Orthodontics, 2023.

63. Byeonguk Kang, Jongmin Choi, Hee-Kap Ahn.
Intersecting Disks using Two Congruent Disks. (ShareLink)
Computational Geometry, 110, 101966, 2023.

62. Hwi Kim, Jaegun Lee, Hee-Kap Ahn.
Rectangular Partitions of a Rectilinear Polygon. (ShareLink)
Computational Geometry, 110, 101965, 2023.

61. Jongmin Choi, Dahye Jeong, Hee-Kap Ahn.
Covering Convex Polygons by Two Congruent Disks. (ShareLink)
Computational Geometry, 109, 101936, Feb. 2023.

60. Joon Im, Ju-Yeong Kim, Hyung-Seog Yu, Kee-Joon Lee, Sung-Hwan Choi, Ji-Hoi Kim, Hee-Kap Ahn, Jung-Yul Cha.
Accuracy and efficiency of automatic tooth segmentation in digital dental models using deep learning.
Scientific Reports, 12, 9429, 2022.

59. Taehoon Ahn, Jongmin Choi, Chaeyoon Chung, Hee-Kap Ahn, Sang Won Bae, Sang Duk Yoon.
Rearranging a Sequence of Points onto a Line. (ShareLink)
Computational Geometry, 107, 101887, 2022.

58. Mincheol Kim, Hee-Kap Ahn.
Minimum-Link Shortest Paths for Polygons amidst Rectilinear Obstacles.
Computational Geometry, 103, 101858, 2022.

57. Jongmin Choi, Sergio Cabello, Hee-Kap Ahn.
Maximizing Dominance in the Plane and its Applications. (SharedIt)
Algorithmica, 83, pages 3491–3513, 2021.

56. Mincheol Kim, Sang Duk Yoon, Hee-Kap Ahn.
Shortest Rectilinear Path Queries to Rectangles in a Rectangular Domain.
Computational Geometry, 99, 101796, 2021.

55. Seungjun Lee, Taekang Eom, Hee-Kap Ahn.
Largest triangles in a polygon.
Computational Geometry, 98, 101792, 2021.

54. Jongmin Choi, Hee-Kap Ahn.
Efficient Planar Two-Center Algorithms.
Computational Geometry, 97, 101768, 2021.

53. Yujin Choi, Seungjun Lee, Hee-Kap Ahn.
Maximum-Area and Maximum-Perimeter Rectangles in Polygons.
Computational Geometry, 94, 101710, 2021.

52. Hee-Kap Ahn, Helmut Alt, Maike Buchin, Eunjin Oh, Ludmila Scharf, Carola Wenk.
Middle Curves Based on Discrete Fréchet Distance.
Computational Geometry, 89, 101621, 2020.

51. Eunjin Oh, Luis Barba, Hee-Kap Ahn.
The Geodesic Farthest-point Voronoi Diagram in a Simple Polygon.
Algorithmica 82(5), pages 1434–1473, 2020.

50. Eunjin Oh, Hee-Kap Ahn.
Voronoi Diagrams for a Moderate-Sized Point-Set in a Simple Polygon. (Full-text view-only version)
Discrete & Computational Geometry, 63(2), pages 418–454, 2020.

49. Eunjin Oh, Hee-Kap Ahn.
Finding Pairwise Intersections of Rectangles in a Query Rectangle.
Computational Geometry, 85, 101576, 2019.

48. Eunjin Oh, Hee-Kap Ahn.
Computing the Center Region and Its Variants.
Theoretical Computer Science, 789, pages 2–12, 2019.

47. Hee-Kap Ahn, Eunjin Oh, Lena Schlipf, Fabian Stehn, Darren Strash.
On Romeo and Juliet Problems: Minimizing Distance-to-Sight.
Computational Geometry (on invitation, EuroCG 2018), 84, pages 12–21, 2019.

46. Eunjin Oh, Sang Won Bae, Hee-Kap Ahn.
Computing a Geodesic Two-Center of Points in a Simple Polygon.
Computational Geometry: Theory and Applications, 82, pages 45–59, 2019.

45. Eunjin Oh, Hee-Kap Ahn.
A New Balanced Subdivision of a Simple Polygon for Time-Space Trade-off Algorithms. (Full-text view-only version)
Algorithmica, 81(7), pages 2829–2856, 2019.

44. Eunjin Oh, Hee-Kap Ahn.
Assigning Weights to Minimize the Covering Radius in the Plane.
Computational Geometry: Theory and Applications, 81, pages 22-32, 2019.

43. Hee-Kap Ahn, Sang Won Bae, Jongmin Choi, Matias Korman, Wolfgang Mulzer, Eunjin Oh, Ji-Won Park, André van Renssen, Antoine Vigneron.
Faster Algorithms for Growing Prioritized Disks and Rectangles.
Computational Geometry: Theory and Applications, 80, pages 23–39, 2019.

42. Hee-Kap Ahn, Judit Abardia, Sang Won Bae, Otfried Cheong, Susanna Dann, Dongwoo Park, Chan-Su Shin.
The Minimum Convex Container of Two Convex Polytopes under Translations.
Computational Geometry: Theory and Applications, 77, pages 40–50, 2019. (on invitation, CCCG 2014)

41. Hee-Kap Ahn, Taehoon Ahn, Sang Won Bae, Jongmin Choi, Mincheol Kim, Eunjin Oh, Chan-Su Shin, Sang Duk Yoon.
Minimum-Width Annulus with Outliers: Circular, Square, and Rectangular Cases.
Information Processing Letters, 145, pages 16–23, 2019.

40. Eunjin Oh, Jean-Lou De Carufel, Hee-Kap Ahn. *Computational Geometry: Theory and Applications* 74, pages 21–37, 2018.

39. Sang Duk Yoon, Min-Gyu Kim, Wanbin Son, Hee-Kap Ahn.
Geometric Matching Algorithms for Two Realistic Terrains.
Theoretical Computer Science 715, pages 60–70, 2018.

38. Wanbin Son, Fabian Stehn, Christian Knauer, Hee-Kap Ahn.
Top-k Manhattan Spatial Skyline Queries.
Information Processing Letters 123, pages 27–35, 2017.

37. Sang Duk Yoon, Hee-Kap Ahn, Jessica Sherette.
Realistic Roofs without Local Minimum Edges over a Rectilinear Polygon.
Theoretical Computer Science 675, pages 15–26, 2017.

36. Hee-Kap Ahn, Luis Barba, Prosenjit Bose, Jean-Lou De Carufel, Matias Korman, Eunjin Oh.
A linear-time algorithm for the geodesic center of a simple polygon. (Full-text view-only version)
Discrete & Computational Geometry 56(4), pages 836–859, 2016. (on invitation, SoCG 2015)

35. Dongwoo Park, Sang Won Bae, Helmut Alt, Hee-Kap Ahn.
Bundling Three Convex Polygons to Minimize Area or Perimeter.
Computational Geometry: Theory and Applications 51(1), pages 1–14, 2016.

34. Wanbin Son, Sang Won Bae, Hee-Kap Ahn.
Group Nearest-Neighbor Queries in the L1 Plane.
Theoretical Computer Science 592, pages 39–48, 2015.

33. Sang-Sub Kim, Hee-Kap Ahn.
An Improved Data Stream Algorithm for Clustering.
Computational Geometry: Theory and Applications 48(9), pages 635–645, 2015.

32. Hee-Kap Ahn, Hyo-Sil Kim, Sang-Sub Kim, Wanbin Son.
Computing k centers over Streaming Data for Small k.
International Journal of Computational Geometry and Applications 24(02), pages 107–123, 2014.

31. Hee-Kap Ahn, Sang Won Bae, Otfried Cheong, Joachim Gudmundsson, Takeshi Tokuyama, Antoine Vigneron.
A Generalization of the Convex Kakeya Problem.
Algorithmica 70(2), pages 152–170, 2014. (on invitation, LATIN 2012)

30. Wanbin Son, Seung-won Hwang, Hee-Kap Ahn.
MSSQ: Manhattan Spatial Skyline Queries.
Information Systems 40, pages 67–83, 2014.

29. Hee-Kap Ahn, Siu-Wing Cheng, Hyuk Jun Kweon, Juyoung Yon.
Overlap of Convex Polytopes under Rigid Motion.
Computational Geometry: Theory and Applications 47(1), pages 15–24, 2014.

28. Hee-Kap Ahn, Sang Won Bae, Christian Knauer, Mira Lee, Chan-Su Shin, Antoine Vigneron.
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