

# Hee-Kap Ahn *Professor*

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## Research Interest

I am interested in most areas of **computational geometry**, the study of design and analysis of **algorithms** on geometry and optimization problems.

Computational geometry has evolved from a sub-discipline of theoretical computer science, but it has developed in several directions and forged links with other 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 ar-

eas, 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 also have a keen interest in *shape matching*. Shape matching is an important ingredient in shape retrieval, recognition and classification, alignment and registration, and approximation and simplification. In a typically large database of shapes, for example, shape retrieval searches for all shapes similar to a query shape. Recently I have been working on the design of algorithms to compute the similarity between shapes, which lead to papers in journals and conferences, including International Symposium on Computational Geometry (SoCG).

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## Professional Experience

Pohang University of Science and Engineering	POHANG, KOREA
<b>Professor</b> Department of Computer Science and Engineering	Sep '16 – Now
<b>Associate Professor</b> Department of Computer Science and Engineering	Sep '10 – Aug '16
<b>Assistant Professor</b> Department of Computer Science and Engineering	Jul '07 – Aug '10
<b>Adjunct Professor</b> Department of Computer Science and Engineering	Sep '08 – Now
Sejong University	SEOUL, KOREA
<b>Assistant Professor</b> Department of Computer Science and Engineering	Mar '06 – Jul '07
Korea Advanced Institute of Science and Technology	DAEJEON, KOREA
<b>Research Assistant Professor</b> Computer Science Division - replacement of military service.	Feb '04 – Feb '06
Korea Institute of Science and Technology	SEOUL, KOREA
<b>Scientific Researcher</b> Imaging Media Research Center - replacement of military service.	Oct '01 – Jan '04

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## 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 Engineering 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
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## Professional Activities

### Workshops and Seminars:

- 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)
- Japan-Korea Joint Workshop on General Optimization: Polygon containment, packing, alignment, Zao resort, Japan (2015)
- Invited talk at Geometry Seminar, Courant Institute of Mathematical Sciences, New York University, United States (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)

- 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 members:** Asian Association for Algorithms and Computation (AAAC)

**Journal editorship:** I am currently an editorial board member of

- Computational Geometry : Theory and Applications (CGTA) (2015–)
- Journal of Discrete Algorithms (JDA) (2015–)
- Journal of Information Processing (JIP) (2012–)
- Interdisciplinary Information Sciences (IIS) (2013–)
- Journal of Computational Geometry (JoCG) (2009–2012)
- Journal of Information Science and Engineering (JISE) (2011-2017)

**Program committees:** I was a PC co-chair of ISAAC 2014 (25th International Symposium on Algorithms and Computation (ISAAC 2014)) and a PC member of

- SoCG<sup>1</sup> 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
- 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

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<sup>1</sup>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: International Workshop on Algorithms and Computation
- CATS 2011: 17th Computing: the Australasian Theory Symposium
- AAAC 2008–2018: 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),
- 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 was a committee member of International Olympiad in Informatics at KIESE (2013–2016, 2018)

## 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
- *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:

- 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

## Eudcational Experience

### Ph.D. students I supervised:

- Dr. Wanbin Son (2014), Placement: Scientific researcher at KERI  
Thesis: Geometric Algorithms for Geospatial Data: Skyline and Top-k Queries.
- Dr. Hyesun Lee (2015), Placement: Researcher at ETRI  
Thesis: A Feature Model-based Method for Systematic Maintenance and Evolution of Product Lines.
- Dr. Sang-Sub Kim (2016), Placement: Postdoctoral researcher at Bonn University, Germany  
Thesis: Euclidean Centers of Streaming and Imprecise Points.
- Dr. Dongwoo Park (2017), Placement: Researcher at Samsung SDS  
Thesis: Bundling Problems in Geometric Optimization.
- Dr. Yoonho Hwang (2018), Placement: CEO of a company  
Thesis: Fast Proximity Search Algorithms on the Euclidean Space.
- Dr. Eunjin Oh (2018), Placement: Postdoctoral researcher at Max-Planck Institute for Informatics, Germany  
Thesis: Geometric Structures on Points inside a Simple Polygon.
- Dr. Sang Duk Yoon (2018), Placement: Researcher at Samsung Display  
Thesis: Geometric Matching Algorithms for Terrain Data.

### 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.

### 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

52. Hee-Kap Ahn, Helmut Alt, Maike Buchin, Eunjin Oh, Ludmila Scharf, Carola Wenk.  
A Middle Curve Based on Discrete Fréchet Distance.  
*Submitted.*
51. 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.  
*Submitted.*
50. Hee-Kap Ahn, Eunjin Oh, Lena Schlipf, Fabian Stehn, Darren Strash.  
On Romeo and Juliet Problems: Minimizing Distance-to-Sight.  
*Submitted by invitation.*
49. Eunjin Oh, Hee-Kap Ahn.  
A New Balanced Subdivision of a Simple Polygon for Time-Space Trade-off Algorithms.  
*Submitted.*
48. Eunjin Oh, Hee-Kap Ahn.  
Finding Pairwise Intersections of Rectangles in a Query Rectangle.  
*Submitted.*
47. Eunjin Oh, Sang Won Bae, Hee-Kap Ahn.  
Computing a Geodesic Two-Center of Points in a Simple Polygon.  
*Under revision.*
46. 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.  
*Under revision.*
45. Eunjin Oh, Hee-Kap Ahn.  
Voronoi Diagrams for a Moderate-Sized Point-Set in a Simple Polygon.  
*Under revision.*
44. Eunjin Oh, Luis Barba, Hee-Kap Ahn.  
The Geodesic Farthest-point Voronoi Diagram in a Simple Polygon.  
*Under revision.*
43. Eunjin Oh, Hee-Kap Ahn.  
Assigning Weights to Minimize the Covering Radius in the Plane.  
*Accepted for publication in Computational Geometry: Theory and Applications, subject to minor revision.*
42. Eunjin Oh, Hee-Kap Ahn.  
Computing the Center Region and Its Variants.  
*Theoretical Computer Science, 2018.*
41. Eunjin Oh, Jean-Lou De Carufel, Hee-Kap Ahn.  
The geodesic 2-center problem in a simple polygon. [Free access.]  
*Computational Geometry: Theory and Applications 74, pages 21–37, 2018.*
40. 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, 2018. (on invitation, CCCG 2014)*

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.  
Realistic Roofs over a Rectilinear Polygon.  
*Computational Geometry: Theory and Applications* 46(9), pages 1042–1055, 2013.
27. Hee-Kap Ahn, Siu-Wing Cheng, Iris Reinbacher.  
Maximum Overlap of Convex Polytopes under Translation.  
*Computational Geometry: Theory and Applications*, a special issue on “Geometric Optimization”.  
46(5), pages 552–565, 2013.
26. Hee-Kap Ahn, Sang-Sub Kim, Christian Knauer, Lena Schlipf, Chan-Su Shin, Antoine Vigneron.  
Covering and Piercing Disks with Two Centers.  
*Computational Geometry: Theory and Applications*, 46(3), pages 253–262, 2013.



25. Hee-Kap Ahn, Christian Knauer, Marc Scherfenberg, Lena Schlipf, Antoine Vigneron.  
Computing the Discrete Fréchet Distance with Imprecise Input.  
*International Journal of Computational Geometry and Applications*, 22(1), pages 27–44, 2012. (on invitation, ISAAC 2010)
24. Hee-Kap Ahn, Otfried Cheong.  
Aligning two convex figures to minimize area or perimeter.  
*Algorithmica*, 62(1–2), pages 464–479, 2012.
23. Hee-Kap Ahn, Otfried Cheong, Jiří Matoušek, Antoine Vigneron.  
Reachability by paths of bounded curvature in a convex polygon.  
*Computational Geometry: Theory and Applications*, 45(1–2), pages 21–32, 2012.
22. Hee-Kap Ahn, Sang Won Bae, Marc van Kreveld, Iris Reinbacher, Bettina Speckmann.  
Empty Pseudo-Triangles in Point Sets.  
*Discrete Applied Mathematics*, 159(18), pages 2205–2213, 2011.
21. Mu-Woong Lee, Wanbin Son, Hee-Kap Ahn, Seung-won Hwang.  
Spatial Skyline Queries: Exact and Approximation Algorithms.  
*GeoInformatica*, 15(4), pages 665–697, 2011. (on invitation, SSTD 2009 Best Paper)
20. Sang-Sub Kim, Sang Won Bae, Hee-Kap Ahn.  
Covering a Point Set by Two Disjoint Rectangles.  
*International Journal of Computational Geometry and Applications*, 21(3), pages 313–330, 2011. (on invitation, ISAAC 2008)
19. Hee-Kap Ahn, Sang Won Bae, Erik D. Demaine, Martin L. Demaine, Sang-Sub Kim, Mathias Korman, Iris Reinbacher, Wanbin Son.  
Covering Points by Disjoint Boxes with Outliers.  
*Computational Geometry: Theory and Applications*, 44(3), pages 178–190, 2011.
18. Hee-Kap Ahn, Yoshio Okamoto.  
Adaptive Algorithms for Planar Convex Hull Problems.  
*IEICE Transactions on Information and Systems* E94–D(2), pages 182–189, 2011.
17. Hee-Kap Ahn, Peter Brass, Christian Knauer, Hyeon-Suk Na, Chan-Su Shin.  
Covering a Simple Polygon by Monotone Directions.  
*Computational Geometry: Theory and Applications* 43(5), pages 514–523, 2010.
16. Hee-Kap Ahn, Mohammad Farshi, Christian Knauer, Michiel Smid, Yajun Wang.  
Dilation-Optimal Edge Deletion in Polygonal Cycles.  
*International Journal of Computational Geometry and Applications*, 20(1), pages 69–87, 2010. (on invitation, ISAAC 2007)
15. Sang Won Bae, Chunseok Lee, Hee-Kap Ahn, Sunghee Choi, Kyung-Yong Chwa.  
Computing Minimum-Area Rectilinear Convex Hull and L-Shape.  
*Computational Geometry: Theory and Applications*, 42(9), pages 903–912, 2009
14. Hee-Kap Ahn, Sang Won Bae, Siu-Wing Cheng, Kyung-Yong Chwa.  
Casting an Object with a Core.  
*Algorithmica* 54(1), pages 72–88, 2009.
13. Hee-Kap Ahn, Helmut Alt, Tetsuo Asano, Sang Won Bae, Peter Brass, Otfried Cheong, Christian Knauer, Hyeon-Suk Na, Chan-Su Shin, Alexander Wolff.  
Constructing Optimal Highways.  
*International Journal of Foundations of Computer Science* 20(1), pages 3–23, 2009. (on invitation, CATS 2007)

12. Hee-Kap Ahn, Peter Brass, Hyeon-Suk Na, Chan-Su Shin.  
On the Minimum Size of Systems of Building Blocks Expressing all Intervals, and Range-Restricted Queries.  
*Computational Geometry: Theory and Applications* 42(3), pages 207–213, 2009.
11. Hee-Kap Ahn, Sang Won Bae, Otfried Cheong, Joachim Gudmundsson.  
Aperture-Angle and Hausdorff-Approximation of Convex Figures.  
*Discrete & Computational Geometry* 40(3), pages 414–429, 2008.
10. Hee-Kap Ahn, Peter Brass, Chan-Su Shin.  
Maximum Overlap and Minimum Convex Hull of Two Convex Polyhedra under Translations.  
*Computational Geometry: Theory and Applications* 40, pages 171–177, 2008.
9. Hee-Kap Ahn, Otfried Cheong, Chong-Dae Park, Chan-Su Shin, Antoine Vigneron.  
Maximizing the Overlap of Two Planar Convex Sets under Rigid Motions.  
*Computational Geometry: Theory and Applications* 37, pages 3–15, 2007. (on invitation, ACM SoCG 2005)
8. Hee-Kap Ahn, Siu-Wing Cheng, Otfried Cheong.  
Casting with Skewed Ejection Direction.  
*Algorithmica* 44(4), pages 325–342, 2006.
7. Hee-Kap Ahn, Peter Brass, Otfried Cheong, Hyeon-Suk Na, Chan-Su Shin, Antoine Vigneron.  
Inscribing an Axially Symmetric Polygon and other Approximation Algorithms for Planar Convex Sets.  
*Computational Geometry: Theory and Applications* 33(3), pages 152–164, 2006.
6. Hee-Kap Ahn, Siu-Wing Cheng, Otfried Cheong, Jack Snoeyink.  
The Reflex-Free Hull.  
*International Journal of Computational Geometry and Applications* 14(6), pages 453–474, 2004.
5. Hee-Kap Ahn, Siu-Wing Cheng, Otfried Cheong, Mordecai Golin, René van Oostrum.  
Competitive Facility Location: The Voronoi Game.  
*Theoretical Computer Science* 310(1-3), pages 457–467, 2004.
4. Hee-Kap Ahn, Otfried Cheong, René van Oostrum.  
Casting a Polyhedron with Directional Uncertainty.  
*Computational Geometry: Theory and Applications* 26(2), pages 129–141, 2003.
3. Hee-Kap Ahn, Otfried Cheong, Chan-Su Shin.  
Building Bridges between Convex Regions.  
*Computational Geometry: Theory and Applications* 25(1/2), pages 161–170, 2003.
2. Hee-Kap Ahn, Mark de Berg, Prosenjit Bose, Siu-Wing Cheng, Dan Halperin, Jiří Matoušek, Otfried Schwarzkopf.  
Separating an Object from its Cast.  
*Computer-Aided Design (CAD)* 34(8), pages 547–559, 2002.
1. Hee-Kap Ahn, Prosenjit Bose, Jurek Czyzowicz, Nicolas Hanusse, Evangelos Kranakis, Pat Morin.  
Flipping your Lid.  
*Geoinformatics* X(2), pages 57–63, 2000. at Utrecht university.

### Guest-Edited Journal Issues and Books

3. Hee-Kap Ahn, Chan-Su Shin.  
Guest Editor's Foreword of the special Issue for the 25th International Symposium on Algorithms and Computation (ISAAC 2014).  
*Algorithmica* 76(4), 2016.

2. Hee-Kap Ahn, Chan-Su Shin.  
Algorithms and Computation - 25th International Symposium, ISAAC 2014, Jeonju, Korea, December 15-17, 2014  
Proceedings. Lecture Notes in Computer Science 8889, Springer 2014, ISBN 978-3-319-13074-3.
1. Hee-Kap Ahn, Antoine Vigneron.  
Guest Editors' Foreword of the special issue for the 24th International Symposium on Algorithms and Computation (ISAAC 2013).  
*International Journal of Computational Geometry and Applications* 24(4), pages 259–260, 2014.

## Refereed International Conference Proceedings

68. Jeong-Han Yun, Yoonho Hwang, Woomyo Lee, Hee-Kap Ahn, Sin-Kyu Kim.  
Statistical Similarity of Critical Infrastructure Network Traffic based on Nearest Neighbor Distances.  
*Accepted for presentation at 21st International Symposium on Research in Attacks, Intrusions and Defenses (RAID 2018), 2018.*
67. Eunjin Oh, Hee-Kap Ahn.  
Polygon Queries for Convex Hulls of Points.  
*In Proc. 24th International Computing and Combinatorics Conference (COCOON 2018), pages 143–155, 2018.*
66. Hee-Kap Ahn, Eunjin Oh, Lena Schlipf, Fabian Stehn, Darren Strash.  
On Romeo and Juliet Problems: Minimizing Distance-to-Sight.  
*In Proc. 16th Scandinavian Symposium and Workshops on Algorithm Theory (SWAT 2018), pages 6:1–6:13, 2018.*
65. Eunjin Oh, Hee-Kap Ahn.  
Approximate Range Queries for Clustering.  
*In Proc. 34th International Symposium on Computational Geometry (SoCG 2018), pages 62:1–62:14, 2018.*
64. Eunjin Oh, Hee-Kap Ahn.  
Point Location in Dynamic Planar Subdivisions.  
*In Proc. 34th International Symposium on Computational Geometry (SoCG 2018), pages 63:1–63:14, 2018.*
63. Hee-Kap Ahn, Taehoon Ahn, Jongmin Choi, Mincheol Kim, Eunjin Oh.  
Minimum-Width Square Annulus Intersecting Polygons.  
*In Proc. 12th International Conference and Workshops on Algorithms and Computation (WALCOM 2018), pages 56–67, 2018.*
62. 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.  
*In Proc. 12th International Conference and Workshops on Algorithms and Computation (WALCOM 2018), pages 44–55, 2018.*
61. Yoonho Hwang, Sehoon Kim, Mooyeol Baek, Bohyung Han, Hee-Kap Ahn.  
Product Quantized Translation for Fast Nearest Neighbor Search.  
*In Proc. 32nd AAAI Conference on Artificial Intelligence (AAAI-18), pages 3295–3301, 2018.*
60. 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.  
*In Proc. 28th International Symposium on Algorithms and Computation (ISAAC 2017), pages 3:1–3:13, 2017.*
59. Eunjin Oh, Hee-Kap Ahn  
Finding Pairwise Intersections of Rectangles in a Query Rectangle.  
*In Proc. 28th International Symposium on Algorithms and Computation (ISAAC 2017), pages 60:1–60:12, 2017.*
58. Eunjin Oh, Hee-Kap Ahn  
A New Balanced Subdivision of a Simple Polygon for Time-Space Trade-off Algorithms.  
*In Proc. 28th International Symposium on Algorithms and Computation (ISAAC 2017), pages 61:1–61:12, 2017.*

57. Hee-Kap Ahn, Nicola Baraldo, Eunjin Oh, Francesco Silvestri.  
A Time-Space Tradeoff for Triangulations of Points in the Plane.  
In Proc. *23rd Annual International Computing and Combinatorics Conference (COCOON 2017)*, pages 3–12, 2017.
56. Eunjin Oh, Hee-Kap Ahn.  
Dynamic Geodesic Convex Hulls in Dynamic Simple Polygons.  
In Proc. *33rd International Symposium on Computational Geometry (SoCG 2017)*, pages 51:1–51:15, 2017.
55. Eunjin Oh, Hee-Kap Ahn.  
Voronoi Diagrams for a Moderate-Sized Point-Set in a Simple Polygon.  
In Proc. *33rd International Symposium on Computational Geometry (SoCG 2017)*, pages 52:1–52:15, 2017.
54. Eunjin Oh, Hee-Kap Ahn.  
Computing the Center Region and Its Variants.  
In Proc. *11th International Conference and Workshops on Algorithms and Computation (WALCOM 2017)*, pages 254–265, 2017.
53. Jongmin Choi, Dongwoo Park, Hee-Kap Ahn.  
Bundling Two Simple Polygons to Minimize Their Convex Hull  
In Proc. *11th International Conference and Workshops on Algorithms and Computation (WALCOM 2017)*, pages 66–77, 2017.
52. Eunjin Oh, Hee-Kap Ahn.  
Assigning Weights to Minimize the Covering Radius in the Plane.  
In Proc. *27th International Symposium on Algorithms and Computation (ISAAC 2016)*, pages 58:1–58:12, 2016.
51. Eunjin Oh, Hee-Kap Ahn.  
A Near-Optimal Algorithm for Finding an Optimal Shortcut of a Tree.  
In Proc. *27th International Symposium on Algorithms and Computation (ISAAC 2016)*, pages 59:1–59:12, 2016.
50. Eunjin Oh, Wanbin Son, Hee-Kap Ahn.  
Constrained Geodesic Center of a Simple Polygon.  
In Proc. *15th Scandinavian Symposium and Workshops on Algorithm Theory (SWAT 2016)*, pages 29:1–29:13, 2016.
49. Eunjin Oh, Luis Barba, Hee-Kap Ahn.  
The farthest-point geodesic Voronoi diagram of points on the boundary of a simple polygon.  
In Proc. *32nd International Symposium on Computational Geometry (SoCG 2016)*, pages 56:1–56:15, 2016.
48. Eunjin Oh, Sang Won Bae, Hee-Kap Ahn.  
Computing a Geodesic Two-Center of Points in a Simple Polygon.  
In Proc. *12th Latin American Theoretical Informatics Symposium (LATIN 2016)*, pages 646–658, 2016.
47. Hee-Kap Ahn, Helmut Alt, Maike Buchin, Eunjin Oh, Ludmila Scharf, Carola Wenk.  
A Middle Curve Based on Discrete Fréchet Distance.  
In Proc. *12th Latin American Theoretical Informatics Symposium (LATIN 2016)*, pages 14–26, 2016.
46. Eunjin Oh, Jean-Lou De Carufel, Hee-Kap Ahn.  
The 2-center problem in a simple polygon.  
In Proc. *26th International Symposium on Algorithms and Computation (ISAAC 2015)*, pages 307–317, 2015.

45. Sang Duk Yoon, Min-Gyu Kim, Wanbin Son, Hee-Kap Ahn.  
Geometric Matching Algorithms for Two Realistic Terrains.  
In Proc. *26th International Symposium on Algorithms and Computation (ISAAC 2015)*, pages 285–295, 2015.
44. 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.  
In Proc. *31st International Symposium on Computational Geometry (SoCG 2015)*, pages 209–223, 2015.
43. Hee-Kap Ahn, Sang Won Bae, Otfried Cheong, Dongwoo Park, Chan-Su Shin.  
Minimum Convex Container of Two Convex Polytopes under Translations.  
In Proc. *26th Canadian Conference on Computational Geometry (CCCG 2014)*, 2014.
42. Sang-Sub Kim, Hee-Kap Ahn.  
An Improved Data Stream Algorithm for Clustering.  
In Proc. *11th Latin American Theoretical Informatics Symposium (LATIN 2014)*, pages 273–284, 2014.
41. Wanbin Son, Fabian Stehn, Christian Knauer, Hee-Kap Ahn.  
Top- $k$  Manhattan Spatial Skyline Queries.  
In Proc. *8th International Workshop on Algorithms and Computation (WALCOM 2014)*, pages 22–33, 2014.
40. Hee-Kap Ahn, Helmut Alt, Sang Won Bae, Dongwoo Park.  
Bundling Three Convex Polygons to Minimize Area or Perimeter.  
In Proc. *13th Algorithms and Data Structures Symposium (WADS 2013)*, pages 13–24, 2013.
39. Hee-Kap Ahn, Sang Won Bae, Wanbin Son.  
Group Nearest Neighbor Queries in the  $L_1$  Plane.  
In Proc. *10th Annual Conference on Theory and Applications of Models of Computation (TAMC 2013)*, pages 52–61, 2013.
38. Hee-Kap Ahn, Siu-Wing Cheng, Hyuk Jun Kweon, Juyoung Yon.  
Overlap of Convex Polytopes under Rigid Motion.  
In Proc. *32nd IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS 2012)*, pages 498–509, 2012.
37. Hee-Kap Ahn, Hyo-Sil Kim, Sang-Sub Kim, Wanbin Son.  
Computing  $k$ -center over Streaming Data for Small  $k$ .  
In Proc. *23rd International Symposium on Algorithms and Computation (ISAAC 2012)*, pages 54–63, 2012.
36. Hee-Kap Ahn, Sang Won Bae, Shin-Ichi Tanigawa.  
Rectilinear Covering for Imprecise Input Points.  
In Proc. *23rd International Symposium on Algorithms and Computation (ISAAC 2012)*, pages 309–318, 2012.
35. Yoonho Hwang, Bohyung Han, Hee-Kap Ahn.  
A Fast Nearest Neighbor Search Algorithm by Nonlinear Embedding.  
In Proc. *25th IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2012)*, pages 3053–3060, 2012.
34. Hee-Kap Ahn, Sang Won Bae, Otfried Cheong, Joachim Gudmundsson, Takeshi Tokuyama.  
A Generalization of the Convex Kakeya Problem.  
In Proc. *10th Latin American Theoretical Informatics Symposium (LATIN 2012)*, pages 1–12, 2012.
33. Yoonho Hwang, Hee-Kap Ahn.  
Convergent Bounds on the Euclidean Distance.  
In Proc. *25th Annual Conference on Neural Information Processing Systems (NIPS 2011)*, pages 388–396, 2011.

32. Hee-Kap Ahn, Sang-Sub Kim, Christian Knauer, Lena Schlipf, Chan-Su Shin, Antoine Vigneron.  
Covering and Piercing Disks with Two Centers.  
In Proc. *22nd International Symposium on Algorithms and Computation (ISAAC 2011)*, pages 50–59, 2011.
31. Hee-Kap Ahn, Sang Won Bae, Christian Knauer, Mira Lee, Chan-Su Shin, Antoine Vigneron.  
Generating Realistic Roofs over a Rectilinear Polygon.  
In Proc. *22nd International Symposium on Algorithms and Computation (ISAAC 2011)*, pages 60–69, 2011.
30. Wanbin Son, Seung-won Hwang, Hee-Kap Ahn.  
MSSQ: Manhattan Spatial Skyline Queries., pages 313–329, 2011.  
In Proc. *12th Symposium on Spatial and Temporal Databases (SSTD 2011)*
29. Hee-Kap Ahn, Christian Knauer, Marc Scherfenberg, Lena Schlipf, Antoine Vigneron.  
Computing the Discrete Fréchet Distance with Imprecise Input.  
In Proc. *21st International Symposium on Algorithms and Computation (ISAAC 2010)*, LNCS 6507, pages 422–433, 2010.
28. Hee-Kap Ahn, Siu-Wing Cheng, Iris Reinbacher.  
Maximum Overlap of Convex Polytopes under Translation.  
In Proc. *21st International Symposium on Algorithms and Computation (ISAAC 2010)*, LNCS 6507, pages 97–108, 2010.
27. Hee-Kap Ahn, Yoshio Okamoto.  
Adaptive Algorithms for Planar Convex Hull Problems.  
In Proc. *4th International Frontiers of Algorithms Workshop (FAW 2010)*, LNCS 6213, pages 316–326, 2010.
26. Wanbin Son, Mu-Woong Lee, Hee-Kap Ahn, Seung-won Hwang.  
Spatial Skyline Queries: An Efficient Geometric Algorithm. (Best Paper Award)  
In Proc. *11th International Symposium on Spatial and Temporal Databases (SSTD 2009)*, LNCS 5644, pages 247–264, 2009.
25. Hee-Kap Ahn, Sang Won Bae, Sang-Sub Kim, Matias Korman, Iris Reinbacher, Wanbin Son.  
Square and Rectangle Covering with Outliers.  
In Proc. *3rd International Frontiers of Algorithms Workshop (FAW 2009)*., LNCS 5598, pages 132–140, 2009.  
A shorter version has been presented at 25th European Workshop on Computational Geometry 2009.
24. Hee-Kap Ahn, Sang Won Bae, Iris Reinbacher.  
Optimal Empty Pseudo-Triangles in a Point Set.  
In Proc. *21st Canadian Conference on Computational Geometry (CCCG 2009)*, 2009.
23. Hee-Kap Ahn, Sang Won Bae.  
Covering a Point Set by Two Disjoint Rectangles.  
In Proc. *19th Annual International Symposium on Algorithms and Computation (ISAAC 2008)*, LNCS 5369, pages 728–739, 2008.
22. Hee-Kap Ahn, Peter Brass, Christian Knauer, Hyeon-Suk Na, Chan-Su Shin.  
Covering a Simple Polygon by Monotone Directions.  
In Proc. *19th Annual International Symposium on Algorithms and Computation (ISAAC 2008)*, LNCS 5369, pages 668–679, 2008.
21. Hee-Kap Ahn, Mohammad Farshi, Christian Knauer, Michiel Smid, Yajun Wang.  
Dilation-optimal edge deletion in polygonal cycles.  
In Proc. *18th Annual International Symposium on Algorithms and Computation (ISAAC 2007)*, LNCS 4835, pages 88–99, 2007.

20. Sang Won Bae, Chunseok Lee, Hee-Kap Ahn, Sunghee Choi, Kyung-Yong Chwa.  
Maintaining Extremal Points and Its Applications to Deciding Optimal Orientations.  
In Proc. *18th Annual International Symposium on Algorithms and Computation (ISAAC 2007)*, LNCS 4835, pages 788-799, 2007
19. Hee-Kap Ahn, Sang Won Bae, Otfried Cheong, Joachim Gudmundsson.  
Aperture-Angle and Hausdorff-Approximation of Convex Figures.  
In Proc. *23rd Annual ACM Symposium on Computational Geometry (SoCG 2007)*, pages 37-45, 2007.
18. Hee-Kap Ahn, Helmut Alt, Tetsuo Asano, Sang Won Bae, Peter Brass, Otfried Cheong, Christian Knauer, Hyeon-Suk Na, Chan-Su Shin, Alexander Wolff.  
Constructing Optimal Highways.  
In Proc. *Computing: The Australasian Theory Symposium (CATS 2007)*, CRPIT Vol.65, pages 7-14, 2007.
17. Hee-Kap Ahn, Sang Won Bae, Siu-Wing Cheng, Kyung-Yong Chwa.  
Casting an Object with a Core.  
In Proc. *16th Annual International Symposium on Algorithms and Computation (ISAAC 2005)*, LNCS 3827, pages 882-891, 2005,
16. Hee-Kap Ahn, Otfried Cheong.  
Stacking and Bundling two Convex Polygons.  
In Proc. *16th Annual International Symposium on Algorithms and Computation (ISAAC 2005)*, LNCS 3827, pages 40-49, 2005.
15. Hee-Kap Ahn, Otfried Cheong, Chong-Dae Park, Chan-Su Shin, Antoine Vigneron.  
Maximizing the Overlap of Two Planar Convex Sets under Rigid Motions.  
In Proc. *21st Annu. ACM Symposium on Computational Geometry (SoCG 2005)*, pages 356-363, 2005.
14. Hee-Kap Ahn, Peter Brass, Otfried Cheong, Hyeon-Suk Na, Chan-Su Shin, Antoine Vigneron.  
Approximation algorithms for Inscribing or Circumscribing an Axially Symmetric Polygon to a Convex Polygon.  
In Proc. *10th Annual International Computing and Combinatorics Conference (COCOON 2004)* LNCS 3106, pages 259-267, 2004.
13. Hyun-Jhin Lee, Jinwook Kim, Hee-Kap Ahn, Sang Chul Ahn, Ik Jae Kim, Hyoung-Gon Kim, Heedong Ko.  
VR Experience Design in Tangible Space : Heritage Alive!  
In Proc. *15th Triennial Congress of International Ergonomics Association (IEA 2003) and 7th Joint Conference of the Ergonomics Society of Korea and the Japan Ergonomics Society*, 2003.
12. Jinwook Kim, Hee-Kap Ahn, Heedong Ko.  
Description and Response Generation of Cyberspace.  
In Proc. *Proc. 15th Triennial Congress of International Ergonomics Association (IEA 2003) and 7th Joint Conference of the Ergonomics Society of Korea and the Japan Ergonomics Society*, 2003.
11. ChangHoon Park, HeeDong Ko, Changseok Cho, Hee-Kap Ahn, Yo-Sub Han, TaiYun Kim.  
NAVER: Design and Implementation of Networked Virtual Environments Based on PC Cluster.  
In Proc. *6th Joint Conference of the Ergonomics Society of Korea and the Japan Ergonomics Society*, pages 221-228, 2002.
10. Jaeho Chang, Heedong Ko, Heekap Ahn, Changhoon Park.  
NAVER Musical Composition Environment.  
In Proc. *Virtual Systems and MultiMedia (VSMM 2002)*, pages 809-814, 2002.
9. ChangHoon Park, HeeDong Ko, Hee-Kap Ahn, Jinwook Kim.  
NAVER: design and implementation of XML-based VR Framework on a PC cluster.  
In Proc. *Virtual Systems and MultiMedia (VSMM 2002)* pages 967-975, 2002.



8. Hee-Kap Ahn, Otfried Cheong, René van Oostrum.  
Casting a Polyhedron with Directional Uncertainty.  
In Proc. *13th Annual International Symposium on Algorithms and Computation (ISAAC 2002)* LNCS 2518, pages 274–285, 2002.
7. Hee-Kap Ahn, Siu-Wing Cheng, Otfried Cheong, Mordecai Golin, René van Oostrum.  
Competitive Facility Location along a Highway.  
In Proc. *7th Annual International Computing and Combinatorics Conference (COCOON 2001)* LNCS 2108, pages 237–246, 2001.
6. Hee-Kap Ahn, Siu-wing Cheng, Otfried Cheong, Jack Snoeyink.  
The Reflex-Free Hull.  
In Proc. *13th Canadian Conference on Computational Geometry (CCCG 2001)* pages 9-12, 2001.
5. Hee-Kap Ahn, Otfried Cheong, Jiří Matoušek, Antoine Vigneron.  
Reachability by Paths of Bounded Curvature in Convex Polygons.  
In Proc. *16th Annu. ACM Symposium on Computational Geometry (SoCG 2000)* pages 251–259, 2000.
4. H.-K. Ahn, P. Bose, J. Czyzowicz, N. Hanusse, E. Kranakis, P. Morin.  
Flipping your Lid.  
In Proc. *12th Canadian Conference on Computational Geometry (CCCG 2000)* pages 13–16, 2000.
3. Hee-Kap Ahn, Siu-Wing Cheng, Otfried Cheong.  
Casting with Skewed Ejection Direction Revisited.  
In Proc. *11th Canadian Conference on Computational Geometry (CCCG 1999)* pages 128–131, 1999.
2. Hee-Kap Ahn, Siu-Wing Cheng, Otfried Cheong.  
Casting with Skewed Ejection Direction.  
In Proc. *9th Ann. International Symposium on Algorithms and Computation (ISAAC 1998)* LNCS 1533, pages 139–148, 1998.
1. Hee-Kap Ahn, Mark de Berg, Prosenjit Bose, Siu-Wing Cheng, Dan Halperin, Jiří Matoušek, Otfried Schwarzkopf.  
Separating an Object from its Cast.  
In Proc. *13th Annu. ACM Symposium on Computational Geometry (SoCG 1997)* pages 221–230, 1997.

## Others - presentations and talks at workshops

34. Hee-Kap Ahn, Eunjin Oh, Lena Schlipf, Fabian Stehn and Darren Strash.  
On Romeo and Juliet Problems: Minimizing Distance-to-Sight.  
In Proc. *34th European Workshop on Computational Geometry (EuroCG 2018)*, 2018.
33. 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.  
In Proc. *31st European Workshop on Computational Geometry (EuroCG 2015)*, 2015.
32. Hee-Kap Ahn, Helmut Alt, Maike Buchin, Ludmila Scharf, Carola Wenk.  
A Middle Curve Based on Discrete Fréchet Distance.  
In Proc. *31st European Workshop on Computational Geometry (EuroCG 2015)*, 2015.
31. Hee-Kap Ahn, Siu-Wing Cheng, Hyuk Jun Kweon, Juyoung Yon.  
Overlap of Convex Polytopes under Rigid Motion.  
In Proc. *15th Japan-Korea Joint Workshop on Algorithms and Computation (WAAC 2012)*, 2012.
30. Hee-Kap Ahn, Sang Won Bae, Shin-ichi Tanigawa.  
Rectilinear Covering for Imprecise Input Points.  
In Proc. *15th Japan-Korea Joint Workshop on Algorithms and Computation (WAAC 2012)*, 2012.
29. Hee-Kap Ahn, Hyo-Sil Kim, Sang-Sub Kim, Wanbin Son.  
Computing Euclidean 2-centers over Streaming Data.  
In Proc. *15th Japan-Korea Joint Workshop on Algorithms and Computation (WAAC 2012)*, 2012.
28. Hee-Kap Ahn, Sang-Sub Kim, Christian Knauer, Hyeon-Suk Na, Lena Schlipf, Chan-Su Shin, Antoine Vigneron.  
Covering and Piercing Disks with Two Centers.  
In Proc. *27th European Workshop on Computational Geometry (EuroCG 2011)*, 2011.
27. Hee-Kap Ahn, Christian Knauer, Marc Scherfenberg, Lena Schlipf, Antoine Vigneron.  
Computing the Discrete Fréchet Distance with Imprecise Input.  
In Proc. *26th European Workshop on Computational Geometry (EuroCG 2010)*, pages 13–16, 2010.
26. Hee-Kap Ahn, Yoshio Okamoto, Iris Reinbacher.  
Tracing a Virus.  
In Proc. *3rd AAAC Annual Meeting*, 2010.
25. Wanbin Son, Hee-Kap Ahn.  
Skyline Queries in Metric Space.  
In Proc. *3rd AAAC Annual Meeting*, 2010.
24. Hee-Kap Ahn, Yoshio Okamoto.  
Adaptive Computational Geometry.  
In RIMS Proceedings of Workshop, pages 114–125, 2009.
23. Hee-Kap Ahn, Marc Scherfenberg, Lena Schlipf, Antoine Vigneron.  
Computing the Discrete Fréchet Distance with Imprecise Input.  
In Proc. *12th Korea-Japan Joint Workshop on Algorithms and Computation (WAAC 2009)*, pages 132–137, 2009.
22. Hee-Kap Ahn, Yoshio Okamoto.  
An Adaptive Algorithm for the Planar Convex Hull.  
In Proc. *2nd AAAC Annual Meeting*, 2009.
21. Hee-Kap Ahn, Sang Won Bae, Sang-Sub Kim, Matias Korman, Iris Reinbacher, Wanbin Son.  
Square and Rectangle Covering with Outliers.  
In Proc. *25th European Workshop on Computational Geometry*, pages 273–276, 2009.

20. Hee-Kap Ahn, Yoshio Okamoto.  
Adaptive Computational Geometry.  
In Proc. *Workshop on Computational Geometry and Discrete Mathematics*, Gyoto, Japan, pages 51–54, 2008
19. Hee-Kap Ahn, Siu-Wing Cheng, Iris Reinbacher.  
Maximum Overlap of Convex Polytopes under Translation.  
In Proc. *11th Japan-Korea Joint Workshop on Algorithms and Computation*, pages 181–188, 2008.
18. Sang Won Bae, Hee-Kap Ahn.  
Optimal Disjoint Two-box Covering of Points.  
In Proc. *1st AAAC Annual Meeting*, 2008.
17. Hee-Kap Ahn, Siu-Wing Cheng, Iris Reinbacher.  
Translation Algorithms for Overlaying Convex Polyhedra.  
In Proc. *1st AAAC Annual Meeting*, 2008
16. Sang Won Bae, Chunseok Lee, Hee-Kap Ahn, Sunghee Choi, Kyung-Yong Chwa.  
Maintaining Extremal Points and Its Applications to Deciding Optimal Orientations.  
In Proc. *10th Korea-Japan Joint Workshop on Algorithms and Computation*, pages 64–71, 2007.
15. Hee-Kap Ahn, Mark de Berg, Otfried Cheong, Herman Haverkort, Frank van der Stappen, Laura Toma.  
River Networks and Watershed Maps of Triangulated Terrains Revisited.  
In Proc. *22nd European Workshop on Computational Geometry (EWCG 2006)*, pages 173–176, 2006
14. Hee-Kap Ahn, Sang Won Bae, Otfried Cheong.  
A New Geometric Proof on Shortest Paths with Bounded Curvature.  
In Proc. *32nd KISS fall conference*, pages 958–960, 2005
13. Chong-Dae Park, Chan-Su Shin, Hee-Kap Ahn, Otfried Cheong, Antoine Vigneron.  
Approximation algorithms for maximizing the overlap of two planar convex sets under rigid motions.  
In Proc. *Korea Computer Congress 2005*, pages 901–903, 2005
12. Hyeon-Suk Na, Chan-Su Shin, Hee-Kap Ahn.  
Geometric properties of roofs of rectilinear polygons.  
In Proc. *Korea Computer Congress 2005*, pages 895–897, 2005
11. Hee-Kap Ahn, Yo-Sub Han, Chan-Su Shin.  
Approximating a Minimum-Diameter Spanning Tree with Bounded Degree.  
In Proc. *Japan Conference on Discrete and Computational Geometry (JCDCG 2004)*
10. Yong Hee Park, Sang Won Bae, Hee-Kap Ahn, Kyung-Yong Chwa.  
Casting an Object with a Core.  
In Proc. *31st KISS fall conference*, pages 706–708, 2004
9. Chong-Dae Park, Chan-Su Shin, Hee-Kap Ahn, Hyunsub Lee, Kyung-Yong Chwa, Otfried Cheong.  
Approximating the Largest Empty and Fat Rectangle.  
In Proc. *31st KISS spring conference*, pages 718–720, 2004
8. Hee-Kap Ahn, Yo-Sub Han, Chan-Su Shin.  
Minimum Diameter Spanning Tree with Bounded Degree.  
In Proc. *30th KISS spring conference* pages 806–808, 2003.
7. Heedong Ko, Hee-Kap Ahn, Jin-Wook Kim, Jong-Guk Kim, Jae-Bok Song, Hong-Jun Eu, Myung-Whan Yun, In-Su Woo, Yeon-Dong Park.  
Evaluation of Car Prototype using CAVE-like Systems.  
In Proc. *30th KSES spring conference* pages 66–73, 2002.

6. Hee-Kap Ahn.  
Geometric Aspects of the Casting Process.  
*Ph.D. Thesis*, ISBN 90-393-2869-2, Utrecht University.
5. Hee-Kap Ahn, Nikos Mamoulis, Ho Min Wong.  
A Survey on Multidimensional Access Methods.  
*Tech.Report*, UU-CS-2001-14, May 2001, Institute of Information and Computing Sciences, Utrecht University
4. Hee-Kap Ahn, Otfried Cheong, Chan-Su Shin.  
Bridging Convex Regions and Related Problems.  
In Proc. *17th European Workshop on Computational Geometry (CG 2001)* pages 53–56, 2001.  
Invited to *Computational Geometry: Theory and Applications*
3. Hee-Kap Ahn, Siu-Wing Cheng, Otfried Cheong.  
Casting with Skewed Ejection Direction (extended abstract).  
In Proc. *First ACM HongKong Postgraduate Research Day (1998)*
2. Hee-Kap Ahn.  
Casting with two-part cast: Opposite and Non-opposite cast removal.  
*Master Thesis*, POSTECH.
1. Hee-Kap Ahn, Otfried Schwarzkopf.  
Castable Polyhedra in General Setting.  
In Proc. *24th KISS spring conference* pages 703–706, 1997.