

Jae Hee Lee

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EDUCATION

Dr. rer. nat. in Computer Science, Sep 2013
University of Bremen

- Thesis title: Qualitative Reasoning about Relative Directions: Computational Complexity and Practical Algorithm
- Thesis advisors: Prof. Christian Freksa and Prof. Sanjiang Li
- Visiting doctoral researcher at North Carolina State University (Jan–Mar 2012)
- Visiting doctoral researcher at the University at Buffalo (Oct–Dec 2011)
- Member of the DFG International Research Training Group ‘Semantic Integration of Geospatial Information’

Diplom in Mathematics Apr 2009
University of Bremen

- Thesis title: Analyse und Konstruktion von Parrondo-Paradoxa
- Thesis advisors: Prof. Ulrich Krause and Prof. Peter Maaß
- Fachbereichspreis Mathematik (Diplom Thesis Award)
- Visiting postgraduate student at Seoul National University (Jul-Aug 2008)

RESEARCH EXPERIENCE

Research Associate 2018–present
Cardiff University

Topics: knowledge graph embeddings, natural language processing

Feodor Lynen Postdoctoral Fellow (Humboldt Foundation) 2016–2017
University of Technology Sydney

Topics: temporal reasoning, distributed constraint satisfaction problems

Research Associate 2015
The Australian National University

Topics: inductive spatial reasoning, physical reasoning

Guest Researcher 2014
Cognitive Systems, University of Bremen

Topics: qualitative spatial reasoning, semantic space

Research Assistant 2009–2013
SFB/TR 8 Spatial Cognition, University of Bremen

Topics: qualitative spatial reasoning, computational geometry

GRANTS AND AWARDS

- Bremen-Cardiff Alliance Collaborative Fund, EUR 700, (2018).
- UTS/FEIT Blue Sky Research Scheme, AUD 3000, (2017).
- Feodor Lynen Postdoctoral Fellowship by the Alexander von Humboldt Foundation, EUR 120,000, (2016–2017).
- ECCAI Travel Grant, EUR 400, (2014).
- Fachbereichspreis Mathematik (Diplom Thesis Award) (2009).
- DAAD-KOSEF Scholarship, EUR 3000, (2008).
- Third Prize at the Regional Contest Jugend Forscht (Young Researchers Science Competition) Bremen, DM 300, (2001).
- Special Prize (Senator-Friedrich-Cordewener-Prize) at the Regional Contest Jugend Forscht Bremen, DM 200, (2001).

PEER-REVIEWED JOURNAL PAPERS

21. S. Kong, J. H. Lee and S. Li, “A new distributed algorithm for efficient generalized arc-consistency propagation”, *Autonomous Agents and Multi-Agent Systems* **32(5)**, 569-601, (2018).
20. F. Dylla, J. H. Lee, T. Mossakowski, T. Schneider, A. V. Delden, J. V. D. Ven, and D. Wolter, “A Survey of Qualitative Spatial and Temporal Calculi: Algebraic and Computational Properties”, *ACM Computing Surveys* **50(1)**, 7:1–7:39, (2017).
19. A. Kreutzmann, D. Wolter, F. Dylla, and J. H. Lee, “Towards Safe Navigation by Formalizing Navigation Rules”, *TransNav, the International Journal on Marine Navigation and Safety of Sea Transportation* **7(2)**, 161–168, (2013).
18. D. Wolter and J. H. Lee, “Qualitative reasoning with directional relations”, *Artificial Intelligence* **174(18)**, 1498–1507, (2010).

PEER-REVIEWED CONFERENCE PAPERS

17. S. Kong, J. H. Lee and S. Li, “Multiagent Simple Temporal Problem: The Arc-Consistency Approach”, In *Proceedings of the 32nd AAAI Conference on Artificial Intelligence*, 6219–6226, (2018).
16. S. Kong, J. H. Lee, and S. Li, “A Deterministic Distributed Algorithm for Reasoning with Connected Row-Convex Constraints”, In *Proceedings of the 16th Conference on Autonomous Agents and MultiAgent Systems*, 203–211, (2017).
15. J. H. Lee, L. Sanjiang, L. Zhiguo, and S. Michael, “On Redundancy in Simple Temporal Networks”, In *Proceedings of the 22nd European Conference on Artificial Intelligence*, 828–836, (2016).
14. X. Ge, J. h. Lee, R. Jochen, and Z. Peng, “Hole in One: Using Qualitative Reasoning for Solving Hard Physical Puzzle Problems”, In *Proceedings of the 22nd European Conference on Artificial Intelligence*, 1762–1763, (2016).
13. X. Ge, J. H. Lee, J. Renz, and Zhang, “Trend-Based Prediction of Spatial Change”, In *Proceedings of the 25th International Joint Conference on Artificial Intelligence*, 1074–1080, (2016).

12. D. Wolter and J. H. Lee, “Connecting Qualitative Spatial and Temporal Representations by Propositional Closure”, In *Proceedings of the 25th International Joint Conference on Artificial Intelligence*, 1308–1314, (2016).
11. Zhang, J. H. Lee, and J. Renz, “From Raw Sensor Data to Detailed Spatial Knowledge”, In *Proceedings of the 24th International Joint Conference on Artificial Intelligence*, 910–916, (2015).
10. S. Schockaert and J. H. Lee, “Qualitative Reasoning about Directions in Semantic Spaces”, In *Proceedings of the 24th International Joint Conference on Artificial Intelligence*, 3207–3213, (2015).
9. J. H. Lee, “The complexity of reasoning with relative directions”, In *Proceedings of the 21st European Conference on Artificial Intelligence*, 507–512, (2014).
8. J. H. Lee, J. Renz, and D. Wolter, “StarVars—Effective Reasoning about Relative Directions”, In *Proceedings of the 23rd International Joint Conference on Artificial Intelligence*, 976–982, (2013).
7. M. Bhatt, J. H. Lee, and C. Schultz, “CLP(QS): A Declarative Spatial Reasoning Framework”, In *Proceedings of the 11th International Conference on Spatial Information Theory*, 210–230, (2011).
6. F. Dylla and J. H. Lee, “A Combined Calculus on Orientation with Composition Based on Geometric Properties”, In *Proceedings of the 19th European Conference on Artificial Intelligence*, 1087–1088, (2010).

PEER-REVIEWED WORKSHOP PAPERS

5. X. Ge, J. H. Lee, R. Jochen, and Z. Peng, “Hole in One: Using Qualitative Reasoning for Solving Hard Physical Puzzle Problems”, In *Proceedings of the 29th International Workshop on Qualitative Reasoning*, 42–49, (2016).
4. J. H. Lee and D. Wolter, “A new perspective on reasoning with qualitative spatial knowledge”, In *Proceedings of the IJCAI Workshop on Benchmarks and Applications of Spatial Reasoning*, 3–8, (2011).

PEER-REVIEWED EXTENDED ABSTRACTS

3. J. H. Lee, “Cylindrical Algebraic Decomposition for Reasoning about Qualitative Spatial Knowledge”, *ACM Commun. Comput. Algebra* **44(3/4)**, 123–124, (2011).

TECHNICAL REPORT

2. L. Frommberger, J. H. Lee, J. O. Wallgrün, and F. Dylla, “Composition in OPRAm”, Report Nr. 13, SFB/TR 8 Spatial Cognition, (2007)

EDITED VOLUMES

1. A. Degbelo, J. Brink, C. Stasch, M. Chipofya, T. Gerkenmeyer, M. I. Humayun, J. Wang, K. Broelemann, D. Wang, M. Eppe, and J. H. Lee, editors. *Proceedings of the young researchers forum on Geographic Information Science*, volume 44, AKA Verlag, Heidelberg, (2012)

TEACHING

- Teaching Assistant, Mathematics III, Dr. Arsen Narimanyan, University of Bremen, (Wintersemester 2008–2009).
- Teaching Assistant, Linear Algebra II, Prof. Dieter Denneberg, University of Bremen, (Sommersemester 2007).
- Teaching Assistant, Linear Algebra I, Prof. Dieter Denneberg, University of Bremen, (Wintersemester 2006–2007).

ACTIVITIES

- PC member, the 28th International Joint Conference on Artificial Intelligence, (2019)
- PC member, the 33rd AAAI Conference on Artificial Intelligence, (2019)
- PC member, the 27th International Joint Conference on Artificial Intelligence and the 23rd European Conference on Artificial Intelligence, (2018).
- PC member, the 15th International Conference on Principles of Knowledge Representation and Reasoning, (2016).
- PC member, the 28th Australasian Joint Conference on Artificial Intelligence, (2015).
- Organizer, AI Reading Group, The Australian National University, (2015).
- Organizer, Spatial Reasoning Tea, University of Bremen, (2012–2014).
- Organizer, SFBRTG Doctoral Colloquium, (2012).
- Organizer, Young Researchers Forum on Geographic Information Science, (2012).
- Organizer, Linear Algebra I + II Seminar, University of Bremen, (2007).

SOCIAL ACTIVITIES

- President, the Korean Student Association of Bremen, (Sommersemester 2006).

MISCELLANEOUS

- Languages: German (fluent), English (fluent), Korean (mother tongue), French (basic knowledge).
- Programming Languages: Python, Java, Lisp, R.

ACADEMIC REFERENCES

Prof. Dr. Steven Schockaert
Cardiff University
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Prof. Christian Freksa, Ph.D.
University of Bremen
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Prof. Sanjiang Li, Ph.D
University of Technology Sydney
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Prof. Dr. Jochen Renz
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