

Bo Kang

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Education

- **Ph.D., Computer Science**
Faculty of Engineering and Architecture, Ghent University, Belgium, 2015 - Present
- **M.Sc., Computer Science**
Institute of Computer Science, University of Bonn, Germany, 2012 - 2015
Grade: 1.0/1.0, ausgezeichnet
- **B.Eng., Software Engineering**
College of Software Engineering, Sichuan University, China, 2005 - 2009
Grade: 2.3/1.0, gut

Work Experience

- **Ghent University**, Ghent, Belgium, 10/2015 - Present.
Doctoral Student, Advisors: Prof. Tijl De Bie, Dr. Jeffrey Lijffijt
I am working on project “FORSIED” - formalizing subjective interestingness in exploratory data mining. My primary interests are data mining and machine learning, and more specifically dimensionality reduction algorithms for visualization.
- **Facebook AI**, New York, United States, 06/2018 - 10/2018.
Research Intern, Advisor: Dr. Darío García García
I was working on a dimensionality reduction method that removes known factors from the lower dimensional representations.
- **University of Bristol**, Bristol, United Kingdom, 06/2015 - 09/2015.
Research Staff, Advisors: Prof. Tijl De Bie, Dr. Jeffrey Lijffijt
I worked on project “FORSIED” - formalizing subjective interestingness in exploratory data mining.
- **Fraunhofer IAIS**, Schloss Birlinghoven, Germany, 06/2012 - 05/2015.
Research Assistant, Advisors: Dr. Mario Boley, Dr. Tamas Horvath, Prof. Stefan Wrobel
We investigated co-active learning models and adaptive time-allocation strategies to develop an exploratory data analysis system - “One Click Mining”. This project later evolved into two open source projects: realKD and Creedo.
- **University of Bonn**, Bonn, Germany, 09/2012 - 12/2012.
Research Assistant, Advisors: David Dröschel, Prof. Sven Behnke
I worked on the visual odometry module of a lightweight quadcopter.

Publications

- **B. Kang**, D. García García, J. Lijffijt, R. Santos-Rodríguez, and T. De Bie, “Conditional t-SNE: Complementary t-SNE embeddings through factoring out prior information,” *arXiv preprint arXiv:1905.10086*, 2019

- **B. Kang**, J. Lijffijt, and T. De Bie, “ExplaiNE: An approach for explaining network embedding-based link predictions,” *arXiv preprint arXiv:1904.12694*, 2019
- **B. Kang**, K. Puolamäki, J. Lijffijt, and T. De Bie, “A constrained randomization approach to interactive visual data exploration with subjective feedback,” *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 2019
- **B. Kang**, J. Lijffijt, and T. De Bie, “Conditional Network Embeddings,” in *International Conference on Learning Representations (ICLR)*, 2019
- J. Deng, J. Lijffijt, **B. Kang**, and T. De Bie, “Subjectively interesting motifs in time series,” in *3rd ECML-PKDD Workshop on Advanced Analytics and Learning on Temporal Data*, 2018
- **B. Kang**, J. Lijffijt, R. Santos-Rodríguez, and T. De Bie, “SICA: Subjectively interesting component analysis,” *Data Mining and Knowledge Discovery*, vol. 32, no. 4, pp. 949–987, 2018
- J. Lijffijt, **B. Kang**, W. Duivesteijn, K. Puolamäki, E. Oikarinen, and T. De Bie, “Subjectively interesting subgroup discovery on real-valued targets,” in *Proceedings of the 34th IEEE International Conference on Data Engineering*, 2018, to appear
- K. Puolamäki, E. Oikarinen, **B. Kang**, J. Lijffijt, and T. De Bie, “Interactive visual data exploration with subjective feedback: An information-theoretic approach,” in *Proceedings of the 34th IEEE International Conference on Data Engineering*, 2018, to appear
- **B. Kang**, J. Deng, J. Lijffijt, and T. De Bie, “Clipped projections for more informative visualizations [a work-in-progress report],” in *Proceedings of the 34th ACM SIGKDD Workshop on Interactive Data Exploration and Analytics (IDEA)*, 2017
- K. Puolamäki, **B. Kang**, J. Lijffijt, and T. De Bie, “Interactive visual data exploration with subjective feedback,” in *Machine Learning and Knowledge Discovery in Databases: European Conference, ECML PKDD 2016, Riva del Garda, Italy, September 19-23, 2016, Proceedings, Part II*. Springer International Publishing, 2016, pp. 214–229
- **B. Kang**, K. Puolamäki, J. Lijffijt, and T. De Bie, “A tool for subjective and interactive visual data exploration,” in *Machine Learning and Knowledge Discovery in Databases: European Conference, ECML PKDD 2016, Riva del Garda, Italy, September 19-23, 2016, Proceedings, Part III*. Springer International Publishing, 2016, pp. 3–7
- **B. Kang**, J. Lijffijt, R. Santos-Rodríguez, and T. De Bie, “Subjectively interesting component analysis: Data projections that contrast with prior expectations,” in *Proceedings of the 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*. ACM, 2016, pp. 1615–1624
- J. Lijffijt, **B. Kang**, K. Puolamäki, and T. De Bie, “SIDE: A web app for interactive visual data exploration with subjective feedback,” in *Proceedings of the 22nd ACM SIGKDD Workshop on Interactive Data Exploration and Analytics (IDEA)*, 2016
- T. De Bie, J. Lijffijt, R. Santos-Rodríguez, and **B. Kang**, “Informative data projections: A framework and two examples,” in *European Symposium on Artificial Neural Networks (ESANN)*, 2016
- J. Lijffijt, E. Spyropoulou, **B. Kang**, and T. De Bie, “P-N-RMiner: A generic framework for mining interesting structured relational patterns,” *International Journal of Data Science and Analytics*, 2016
- J. Lijffijt, E. Spyropoulou, **B. Kang**, and T. De Bie, “P-N-RMiner: A generic framework for mining interesting structured relational patterns,” in *IEEE International Conference on Data Science and Advanced Analytics (DSAA)*, 2015

- M. Boley, M. Krause-Traudes, **B. Kang**, and B. Jacobs, “Creedo-Scalable and repeatable extrinsic evaluation for pattern discovery systems by online user studies,” in *Proceedings of the 21st ACM SIGKDD Workshop on Interactive Data Exploration and Analytics (IDEA)*, 2015, pp. 20–28
- M. Boley, M. Mampaey, **B. Kang**, P. Tokmakov, and S. Wrobel, “One Click Mining: Interactive local pattern discovery through implicit preference and performance learning,” in *Proceedings of the 19th ACM SIGKDD Workshop on Interactive Data Exploration and Analytics (IDEA)*, 2013, pp. 27–35

Talks and Posters

- **B. Kang**, “Conditional t-SNE”. Talk: *Tufts University*, United States, 2018.
- **B. Kang**, D. Cashman, R. Chang, J. Lijffijt, and T. De Bie, “CLIPPR: Maximally Informative CLIPped PROjections with Bounding Regions,” in *Proceedings of the IEEE VIS*, 2018
- **B. Kang**, J. Lijffijt, R. Santos-Rodríguez, T. De Bie, “A graph based approach for formalizing subjective interestingness of data projections”. Poster: *The 14th International Symposium on Intelligent Data Analysis (IDA)*, 2015.
- **B. Kang**, “One click mining: Interactive local pattern discovery through implicit preference and performance learning”. Talk: *Advanced Database Research and Modeling Group*, University of Antwerp, Belgium, 2013.

Teaching Experiences

- Ghent University, Spring Semester 2016, 2017, 2018
Teaching Assistant, I am supervising the laboratory classes of the *Big Data Science* lecture.
- University of Bonn, Summer Semester 2014
Teaching Assistant, I was giving the exercises of the *Data Mining* lecture.
- University of Bonn, Winter Semester 2013
Teaching Assistant, I was giving the exercises of the *Machine Learning* lecture.
- University of Bonn, Summer Semester 2013
Teaching Assistant, I was correcting the assignments of the *Data Mining* lecture.

Community Services

Organisation of conferences, workshops

- Web chair. European Conference of Machine Learning and Principles and Practices of Knowledge Discovery in Databases (ECML-PKDD 2020), Ghent, Belgium.
- Co-chair. ECML-PKDD Workshop on Graph Embedding and Mining (GEM 2019), Würzburg, Germany.

Reviewer for journals

- Machine Learning Journal (MLJ)
- IEEE Transactions on Knowledge and Data Engineering (TKDE)

Program committee member for conferences and workshops

- *European Conference of Machine Learning and Principles and Practices of Knowledge Discovery in Databases* (ECML-PKDD), 2016, 2017, 2018, 2019.
- *ACM SIGKDD Workshop on Interactive Data Exploration and Analytics* (IDEA), 2017, 2018.
- *International Conference on Discovery Science* (DS), 2018.
- *Computer Science Conference for University of Bonn Students* (CSCUBS), 2014, 2015.

Skills

- Programming Languages: Python, Matlab, Javascript, Java, C/C++, Shell, L^AT_EX.
- Tools: PyTorch, TensorFlow, D3.js, Dash Plotly, React.
- Natural Languages: Chinese (native), English (fluent), German (intermediate level), Japanese (beginner level).