



Dr. Dominik Köppl

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Dr. Dominik Köppl (2021)

Affiliated Institution: Tokyo Medical and Dental University

Current Position: Assistant Professor

Research field or theme: Theoretical Computer Science, Algorithms and Data Structures

He is....

Participated Programs

As part of the JSPS Summer Program 2016 and the JSPS postdoctoral fellowship program 2018, I enjoyed a fruitful and pleasant stay for two weeks at the University of Tokyo with Prof. Sadanake, followed by another six weeks in 2016 with Prof. Inenaga at Kyushu University. Supported by the latter host, I could visit Kyushu again for a two years stay in 2018. Since 2015, I am member of the German JSPS Alumni Association.

Research Field

I am engaged in research areas such as data structures, algorithms, and combinatorics in general, as well as lossless data compression, text indexing, and regularities on strings in particular.

Motivation of my Research

Managing massive datasets has become a challenging task in the current days due to the vast increase of digital data collections as well as of the bandwidths and storage capacities of digital devices. Focus of my research is put on how to efficiently manage and maintain large datasets in a meaningful way. For that, a ground-breaking technique is to combine lossless data compression techniques (to slim down the space) with text indexing data structures (to enable operations on the data such as a search). Especially in bioinformatics, we currently struggle with maintaining a large number of gene sequences in a data format that compresses the gene sequences well while allowing queries like pattern searches or similarities to be answered efficiently. This, together with other problems related to biological data, are applications of the research I devote myself to.

Research Prospects in Japan

Japan is one of the countries with the most scholars sharing the same research field with me. The algorithmic research community is well organized with local workshops that take place on a regular basis. The workshops and a well-developed online infrastructure (like collaborative online platforms) make it easy to meet researchers sharing common interests, to build up a research network, and to start collaborations. As far as I have experienced, public transportation systems and accommodation facilities are in a splendid shape, and therefore research stays at different research groups were always pleasant without any troubles.

My experienced programs were exceptionally well-structured. At the beginning of both programs, I enjoyed, together with other fellows, an orientation about the Japanese language, culture, and research life, which gave the foundation for conducting research right off. At these events, I could meet fellows with mutual research interests, and with some of them I stayed in touch during and even after the fellowship programs.

Last but not least, I have to thank my hosts:

Prof. Inenaga at Kyushu University for helping me in writing the scholarship applications, shouldering the non-negligible amount of paper work, and supporting me in all questions from research to the daily life in Japan, and Prof. Bannai at Tokyo Medical and Dental University for inviting me to continue my research under his support.

My homepage: <https://dkppl.de/>



Collaborative research with the whiteboard.



My current desktop at Tokyo Medical and Dental University.



My talk at the domestic workshop 'LA Symposium Winter 2019'



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