

## Post-Doc/Researcher in NLP at the Systems Biology Institute

We seek a full-time post-doc/ researcher in NLP to work with the text mining group at the Systems Biology Institute, Japan. The researcher will join a multi-disciplinary team with specialties in computational biology, machine learning, software development and natural language processing to carry out applied machine learning research on the theme of creating an engine for scientific discovery (Ref: 1).

Over the years, our NLP group has been working on different aspects of bio-NLP, knowledge encoding and knowledge discovery on large corporuses of scientific literature and have made several important contributions (Ref 2, 3, 4). The main focus of the postdoctoral researcher will be to work on the problem of **biomedical hypothesis generation from text** (Ref 2). Knowledge in the state-of-the-art NLP and text mining methods is very important. Working experience and understanding of machine learning and deep learning methods is important. The position is primarily based in Tokyo/Japan.

### About the Systems Biology Institute:

The Systems Biology Institute (SBI) is a non-profit private research institution established by Dr Hiroaki Kitano in 2000 with the aim of promoting systems biology research and its application to medicine and global sustainability. SBI focuses on rapid translation of basic research to practical outcomes for both business and clinical applications.

SBI has been engaged in multiple research programs largely funded by branches of Japanese government, including Japan Science and Technology Agency (JST), by private foundation such as the Canon Foundation and international funding from Luxembourg. SBI has extensive private contracts for industrial applications of systems biology research in drug discovery and other areas, including U.S. Food and Drug Administration (FDA). SBI have also worked on a series of projects funded by New Energy Development Organization (NEDO), Ministry of Agriculture, and Ministry of Education, Sports, Culture, Science, and Technology (MEXT). SBI's nodes (currently Australia and Singapore) runs the projects with the grants such as A\*Star.

### References:

- 1) Kitano, H. Nobel Turing Challenge: creating the engine for scientific discovery. npj Syst Biol Appl 7, 29 (2021). <https://doi.org/10.1038/s41540-021-00189-3>
- 2) U. Akujuobi, M. Spranger, Sucheendra K. Palaniappan and X. Zhang, "T-PAIR: Temporal Node-pair Embedding for Automatic Biomedical Hypothesis Generation" in IEEE Transactions on Knowledge & Data Engineering, vol. , no. 01, pp. 1-1, 5555. doi: 10.1109/TKDE.2020.3017687, url: <https://doi.ieeecomputersociety.org/10.1109/TKDE.2020.3017687>
- 3) Michael Spranger, Sucheendra K. Palaniappan, Samik Ghosh. Measuring the State of the Art of Automated Pathway Curation Using Graph Algorithms - A Case Study of the mTOR Pathway. BioNLP 2016, Berlin, Germany.
- 4) Michael Spranger, Sucheendra K. Palaniappan, Samik Ghosh. Extracting Biological Pathway Models From NLP Event Representations Proceedings of the ACL 2015 Workshop on Biomedical Natural Language Processing (BioNLP,2015)

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