



HAKUBI RESEARCHERS' **A**CTIVITIES IN ICR

**Hakubi Project: Fosterage and Support of
Young Researchers, Kyoto University**





Program-Specific Assoc Prof
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(Ph D)

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Outline of Research

This year, my research collaborators and I have continued our work on efficient algorithms for computing different types of consensus trees. Given an input consisting of k phylogenetic trees with n leaves each and with identical leaf label sets, the running times of our algorithms are:

- $O(k n)$ time [majority rule consensus tree],
- $O(k n)$ time [loose consensus tree],
- $O(k n^2)$ time [greedy consensus tree],
- $\min\{O(k n^2), O(k n (k + \log^2 n))\}$ time [frequency difference consensus tree],
- $O(k n \log n)$ [Adams consensus tree],
- $O(n^2)$ [R^* consensus tree with $k=2$],
- $O(n^2 \log^{4/3} n)$ [R^* consensus tree with $k=3$],
- $O(n^2 \log^{k+2} n)$ [R^* consensus tree with $k>3$],
- $O(k n^3 + 2.733^n)$ [minimally resolved local consensus tree], and
- $O(k n^3 + 4^n \text{poly}(n))$ [minimally rooted-triplet-inducing consensus tree].