

Parameterized & Exact Computation @ Wikipedia

1. Core pages about parameterized & exact computation
2. Core pages in theoretical computer science
3. Applications and application areas
4. Famous FPT and $W[1]$ -hard problems
5. Prominent tools and techniques

Based on input from Lars Jaffke and Erlend Vagset

Core pages about parameterized & exact computation

- https://en.wikipedia.org/wiki/Parameterized_complexity

update XP section, add links to other FPT-related pages, add a section on problem parameterizations including structural parameterizations

- <https://en.wikipedia.org/wiki/Kernelization>

add Turing kernelization, lossy kernels

Core pages in theoretical computer science

- https://en.wikipedia.org/wiki/Time_complexity

Add some references to subexponential-time FPT algorithms in Sub-exponential time section

Add fixed-parameter linear as a section

- https://en.wikipedia.org/wiki/Computational_complexity_theory

Update the text with suitable reference(s) to the page for Parameterized_complexity

- https://en.wikipedia.org/wiki/Algorithm#By_complexity

Update the text to incorporate examples of fixed-parameter tractable running times, with pointers to Parameterized_complexity

- https://en.wikipedia.org/wiki/NP-completeness#Solving_NP-complete_problems

Expand the pointer 'Parameterization: Often there are fast algorithms if certain parameters of the input are fixed.'

- https://en.wikipedia.org/wiki/Data_pre-processing

Insert a suitably described reference to Kernelization

- https://en.wikipedia.org/wiki/Approximation_algorithm

Update with references to, and the framework of, parameterized approximation algorithms

- [https://en.wikipedia.org/wiki/Counting_problem_\(complexity\)](https://en.wikipedia.org/wiki/Counting_problem_(complexity))

Expand the stub on counting problems, and add background on parameterized counting, #W[1], etc

Applications and application areas

More open ended; see if the pages of application areas can benefit from cross-references to pages relating to the IPEC community

https://en.wikipedia.org/wiki/Computational_biology

https://en.wikipedia.org/wiki/Computational_chemistry

https://en.wikipedia.org/wiki/Computational_geometry

https://en.wikipedia.org/wiki/Computational_topology

Famous FPT and $W[1]$ -hard problems

- https://en.wikipedia.org/wiki/Vertex_cover#Fixed-parameter_tractability

Update with above-guarantee tractability, different parameterizations, reference to kernel

- https://en.wikipedia.org/wiki/Feedback_vertex_set

Add references to FPT algorithms & kernels, directed & undirected

- https://en.wikipedia.org/wiki/Complete_bipartite_graph

Add references for $W[1]$ -hardness

- https://en.wikipedia.org/wiki/Longest_path_problem

Update with references to current-best algorithms

- https://en.wikipedia.org/wiki/Set_splitting_problem

Update with latest kernelization and algorithmic results

- https://en.wikipedia.org/wiki/Steiner_tree_problem

Insert references to various FPT and exact algorithms

Prominent tools and techniques

- <https://en.wikipedia.org/wiki/Color-coding>

Connect the page to other FPT-related pages by references

- <https://en.wikipedia.org/wiki/Treewidth>

Update with links to state-of-the-art Treewidth solvers

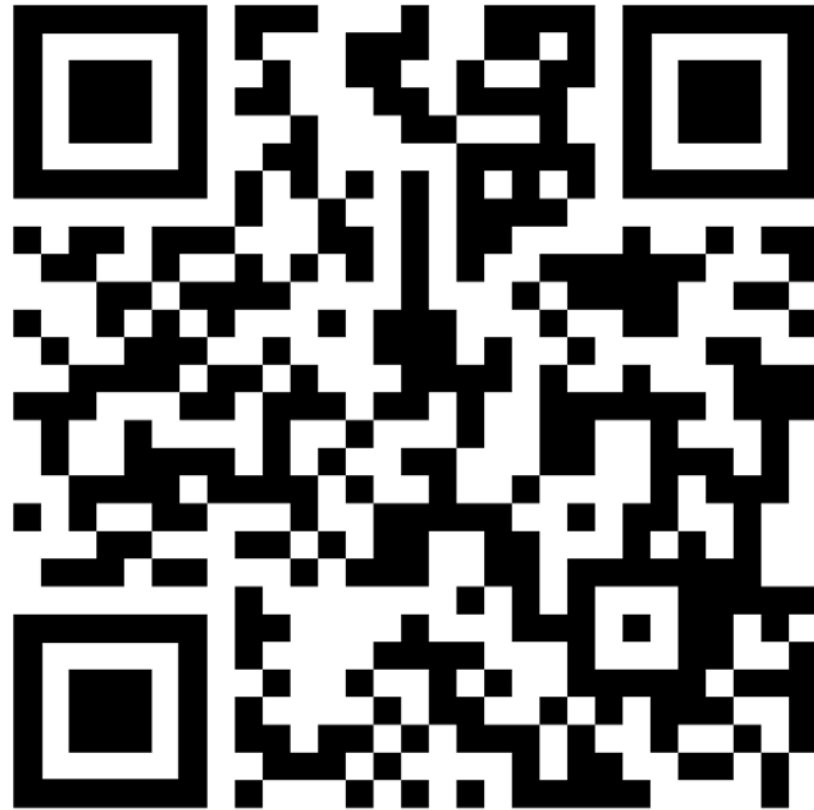
- https://en.wikipedia.org/wiki/Crown_decomposition

Crown decomposition: no page exists for it yet!

... add your favorite!

Parameterized&Exact Computation@Wikipedia

Coordinate the community effort and commit to updating a page:



<https://doodle.com/poll/6a7fnrbqnf82bqd>