

Seminar Complex Network Analysis

Project Progress

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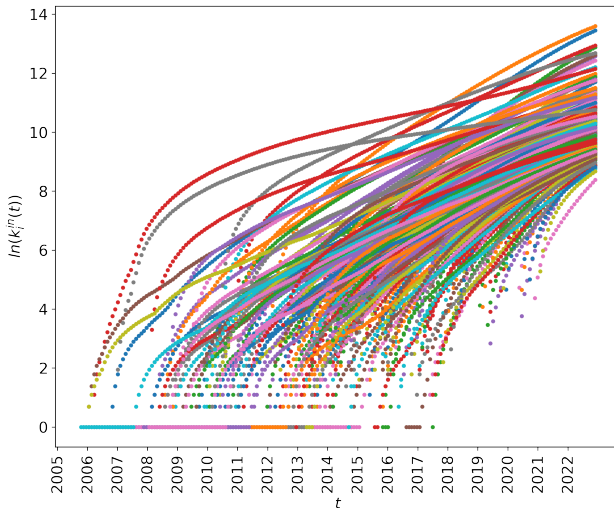
Python Package Dependency Network

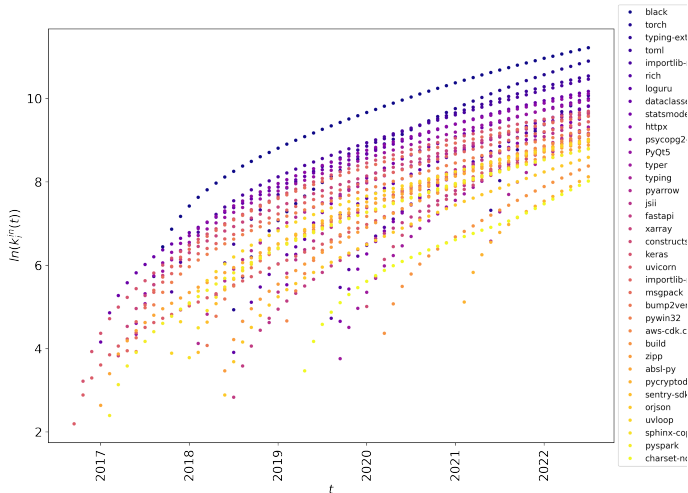
- directed Graph with approx. 10^6 links and $3.6 \cdot 10^5$ nodes
- packages represent nodes
- dependencies between packages represent links

package1 \rightarrow package2

only if package1 is dependent on package2

- data is indexed on PyPI[1] (Python Package Index)
- json-type for all packages
- containing information such as release date, package dependencies, download counts
- can be resorted into a time evolving network





- Objective: construct a layout to visualize the analysis intuitively
- layout based on degree distribution (power-law)

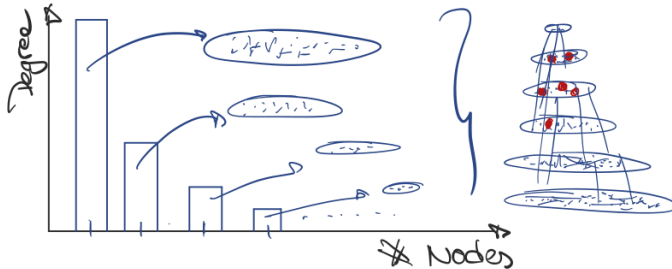


Figure: Layout setup

- incorporate number of downloads into the network
- create a weighted directed graph
- could open doors to more analysis

- [1] Python Software Foundation. *Python Package Index*. URL: <https://pypi.org/> (visited on 03/15/2022).
- [2] A.L. Barabási. *Network Science*. Cambridge University Press, 2016. ISBN: 9781107076266. URL: <https://books.google.at/books?id=iLtGDQAAQBAJ>.

Thank You!