

## **Representation Choice as Blueprint for Amortized Analysis (7/5/2019)**

Representation can be central to enabling amortized analysis, providing a chargeable gap between "normal" and "bad" cases.

For example, choosing a representation that i) generally embedded ops of pre-augmented structure, ii) provided the necessary augmentation properties, and iii) provided a chargeable gap between cases for amortized analysis enabled the partially and fully persistent data structure constructions. The guarantee for changing the present and reading the past (partial persistence), and changing and reading the present and the past (full persistence) at a constant amortized overhead in time and cost in space per change, sounds almost miraculous. This general and lasting result is enabled by the choice of representation: <https://dl.acm.org/citation.cfm?id=64317>

James R. Driscoll, Neil Sarnak, Daniel D. Sleator, and Robert E. Tarjan. 1989. Making data structures persistent. *J. Comput. Syst. Sci.* 38, 1 (February 1989), 86-124. DOI=[http://dx.doi.org/10.1016/0022-0000\(89\)90034-2](http://dx.doi.org/10.1016/0022-0000(89)90034-2)