

# Theoretical Perspectives on Algorithmic Choices Made in Programming Languages

*(Abstract)*

Cyril Nicaud

Université Paris-Est  
Cité Descartes 5  
Champs-sur-Marne  
77454 Marne-la-Vallée Cedex 2  
France  
`cyril.nicaud@u-pem.fr`

All contemporary programming languages offer implementations of classical algorithms and classical data structures such as lists, hash tables, sorting, etc. These are basic building blocks that are used to develop larger programs. Efficient algorithms for dealing with such issues have been known for several decades, since the beginning of computing, often with several variants proposed in the literature. However, there are many surprising choices made by engineers in the implementations of these algorithms in programming languages such as Python, Java, Lua. In this talk, we will investigate several cases where some innovation were introduced, and explain how we can develop a theoretical approach to provide insights on the efficiency of these new ideas.