

# Analysis of Algorithms

## HOMEWORK III

Due on September 29th, 2023

1. Implement the three linear sortings using Ctypes and Python
  - (a) Counting Sort
  - (b) Radix Sort
    - i. Queue version
    - ii. Give its new complexity in big O and prove it
  - (c) Bucketsort
2. Compare them against “Tim” Sort the one in Python
  - (a) Please provide with plots
  - (b) Explain why the differences
    - i. Use the papers
      - A. Auger, Nicolas; Nicaud, Cyril; Pivoteau, Carine (2015). "Merge Strategies: from Merge Sort to TimSort"
      - B. Auger, Jugé, Nicaud, Pivoteau (2018). "On the Worst-Case Complexity of TimSort"