Maximilian Vötsch

in Joe-Smith
boredoms
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Summary

Outgoing PhD student interested in the design and implementation of algorithms. PhD work was focused on engineering algorithms for unsupervised learning problems. Passionate about writing efficient code and low-level optimization. Excellent communication skills and experienced in international collaboration.

Work Experience

University of Vienna
Feb 2021 - Jan 2025

Prae-Doc Assistant

- Part of the Theory and Applications of Algorithms (TAA) group
- Extensive experience in teaching and mentoring students

Projects

XCut
2023 - Present

A novel graph clustering algorithm implemented using random walks and the theory of expander decomposition. The algorithm sparsifies a graph to a tree and uses this to solve the normalized cut problem.

- **Technology/Tools:** C++, CMake, clang-tidy, Python, pandas, pyplot
- Source and working demo: Joe-Smith.com/emojis-finder
- Published at KDD 2024

PRONE
March 2023 - Present

A novel algorithm for solving Euclidean k-means or creating coresets for downstream applicaitons. Made available as a Python package for the data science community. Main implementation in C++, with Cython wrappers provided to make it available to data scientists using python.

- **Technology/Tools:** C++, Python, Cython, numpy, pandas, pyplot
- Source and working demo: Joe-Smith.com/emojis-finder
- Published at NeurIPS 2023

Education

University of Vienna
Feb 2021 - (expected) March 2025

Dr.techn. Computer Science, Thesis Title: Efficient Algorithms for Problems in Clustering and Fairness, supervised by Monika Henzinger and Kathrin Hanauer

University of Vienna
- Aug 2021

M.Sc. Mathematics

University of Vienna
Oct 2015 -

B.Sc. Mathematics

Skills

Languages: C++, Python, Haskell, Rust, Java, German (native), English (fluent)
Technology: git, unix shell, cmake, poetry
Libraries: Blaze, OpenMP, OpenMPI, pandas, numpy, scipy-learn, pytorch

Achievements

- Joe Award — Sept 2021 - Sept 2021
- Top of the Class — April 2014 - April 2019