

Name	Yusuke Matsui	Lab. location	Hongo Campus (Eng. Bld. #2)	Area	Multimedia
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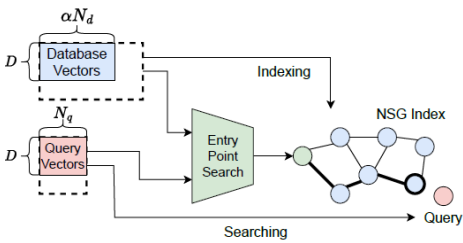
Compute Vision, Data Structure, and Machine Learning

Our team focuses on computer vision, data structures, and machine learning. We research various layers, ranging from low-level data structures and algorithms like memory-efficient large-scale search algorithms and machine learning-enhanced data structures, to high-level systems including multimodal, prompt, and LLM processing. Matsui Lab collaborates with the Aizawa, Yamakata, and Yamasaki Lab.

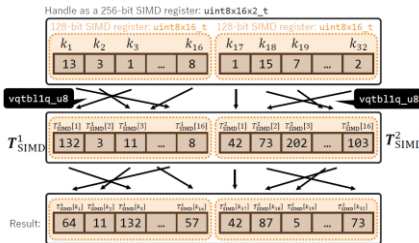
✉ matsui@hal.t.u-tokyo.ac.jp 🏠 <http://yusukematsui.me>

📄 Blog: <https://mti-lab.github.io/blog/>

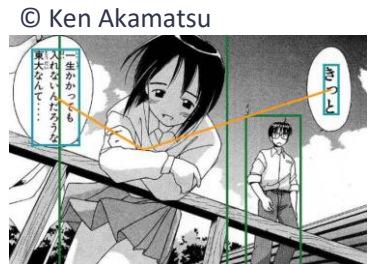
Research topic



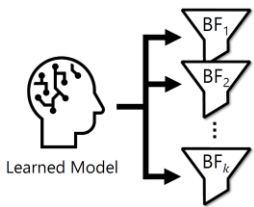
Data structure for NN search:
Entry point optimization for graph-based ANN methods



Fast SIMD computations:
ARM implementations for Faiss



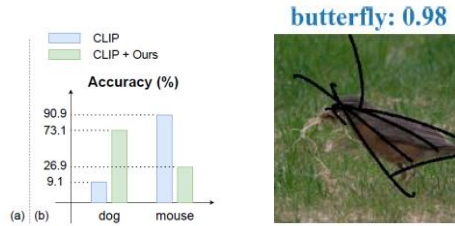
Comic image processing:
Manga109Dialog: dialogue dataset for comic speaker detection



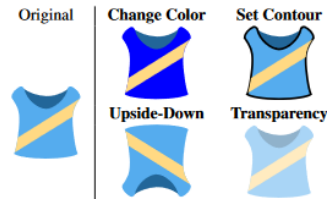
ML + Data structure:
Fast construction for Learned Bloom Filters



Prompt optimization:
Typographic defense via prompting



Multimodal processing:
Adversarial doodles



LLM processing:
SVGEditBench:
Benchmark for LLM's SVG Editing Capabilities

Life in the lab

- Research is a process of sharing and accumulating knowledge. For this reason, we place great importance on openness in our research. We encourage students to publish their research results as a library for people to use. We welcome students who like modern software engineering.
- As the computing environment of our laboratory, we have a cloud computing environment with ABCI (a GPU cluster at AIST) and AWS. Each student is free to perform costly computations such as deep learning or distributed computing.