REFERENCES

We are looking for one of the following profiles:

1. a candidate with solid analytical skills to design algorithms with strong performance guarantees,
2. a candidate expert on high-dimensional data analysis,
3) a candidate with hands-on experience on machine learning, able to reproduce state-of-the-art benchmarks and performance metrics.

Skills

Which framework, among the three described above, is the most appropriate? The answer depends to a large extent on the topological properties of the space where instances lie. Whereas we are looking for collaborations with other research teams studying the topological and geometric structure of data, we will push a practical approach, starting from real traces. Many traces are available for recommender systems based on ML predictors. This application is particularly interesting for MAMMALS, as recommendations need to be customized to the user (a particular example of domain adaptation) and constantly updated to follow dynamic popularities of media contents or products.

III. Prototype implementation.

We plan to provide practical evidence of the potential improvements from MAMMALS new algorithms in a simpler context. In many ML and information retrieval applications it is required to retrieve fast the k nearest neighbours (k-NN) of a given point in a dataset. When the number of dimensions exceeds 10, exact k-NN computation essentially requires to scan the whole dataset [17], so approximate indexing structures have been proposed and are currently implemented in libraries like Facebook Faiss [7]. Now, these systems can also benefit from a fast memory that stores a small subset of the whole repository. Managing this memory dynamically presents many of the challenges described above with the advantage of 1) avoiding the additional complexity of the interaction with the model, and 2) having a clear evaluation framework with well established benchmarks and performance metrics.

Benefits package

- Subsidized meals
- Partial reimbursement of public transport costs
- Leave: 7 weeks of annual leave + 10 extra days off due to RTT (statutory reduction in working hours) + possibility of exceptional leave (sick children, moving home, etc.)
- Possibility of teleworking (after 6 months of employment) and flexible organization of working hours
- Professional equipment available (videoconferencing, loan of computer equipment, etc.)
- Social, cultural and sports events and activities
- Access to vocational training
- Social security coverage

**Remuneration**

Gross Salary: 2653 € per month