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In order to determine the geothermal potential of the municipality of Baré-Bakem, located in both the sedimentary basin of Moungo and the volcanic region of Nkongsamba (Cameroon Volcanic Line), geophysical measurements using electrical resistivity tomography were conducted along a 1km profile between two opposing thermal sources spaced 20 meters apart. The profile was acquired in the SW-NE direction using a 945m-long array with 64 electrodes spaced at 15 meters intervals. The ZZRes2Dinv44 software was employed to generate investigative images. The obtained results along the profile reveal the presence of two geothermal zones of interest trapped within permeable sedimentary formations at depths ranging from approximately 20 to 110 meters and close to the surface. From a geothermometric perspective, chemical geothermometers such as silica and Na-K-Ca were calculated by collecting water samples from these thermal sources and analyzing the physicochemical parameters at the Laboratory of Geochemical Analysis of Waters (LAGE/IRGM) in Nkolbisson. The calculations indicate that the Baré-Bakem locality exhibits temperatures ranging from 51 to 90°C for near-surface anomalies and temperatures ranging from 283 to 300°C for deeper anomalies. These geothermal resources possess high energy potential suitable for electricity production.

Indoor Positioning Systems have gained significance in numerous industrial applications. While state-of-the-art solutions are accurate, their reliance on external infrastructures can lead to considerable costs, deployment complexities, and privacy concerns, making them suboptimal for specific contexts. Recent advancements in machine learning have surfaced as a potential solution, leveraging data solely from onboard IoT sensors. Nonetheless, the optimal machine learning models for IoT's resource constraints remain uncertain. This research introduces an indoor positioning system using motion and ambient sensors tailored for factories and similar settings with predetermined paths. The problem is framed as multivariate time series classification, comparing various ML models. A novel dataset simulating factory assembly lines is utilized for evaluation. Results demonstrate models achieving over 80% accuracy, with 1 Dimensional-Convolutional Neural Networks showing the most balanced performance followed by Multilayer Perceptrons, considering accuracy, memory footprint and latency. Decision Trees exhibit the lowest memory footprint and latency, rendering its potential for practical implementation.

This short paper briefly reports the essential facets of the article (Kamsu-Foguem & al., 2022) presented and discussed as a Journal First paper. The article overviews generative neural networks whose loss functions are based on optimal transport with the Wasserstein distance. This tool of mathematical origin allows interesting automatic learning to be obtained in a reasoning time under Lipschitz constraints. As the proposed studies are based on Wasserstein Generative Adversarial Networks (WGAN), we conclude this report with a short discussion on how WGAN currently supports critical, intelligent applications in our society and nearly all industry sectors.

In this paper, we deal with human-agent teams involving software agents and human agents collaborating to resolve a common problem. We propose experimenting the impact of integrating audio-visual interactive skills on the team performance: vocal communication act is integrated in the autonomous agent so that it can explain its behavior to human using voice as a communication channel; visual communication act is modeled to allow humans to track software agents' movement in the environment. We carry out a series of tests using the testbed BW4T (Block World for Teams) to highlight the evolution of agents' communication with new interactive capabilities partly adapted from DEFACTO(Demonstrating Effective Flexible Agent Coordination of Teams through Omnipresence) experiment . We propose implementing that experiment in Jason platform well adapted to develop such very complex systems where BDI (Believe Desire Intention) agents need to interact in complex ways with humans and/or with each other. The result is a significant improvement in team performance assessed through the completion of the joint task due to a better understanding of the overall situation of the task workflow.

Conversational agents (CAs), are increasingly becoming a common presence in our daily lives (e.g., Alexa or ChatGPT). Research has shown that designing CAs humanlike (e.g., through social cues such as a human name or avatar) results in a higher perception of humanness, which increases and service satisfaction by the user. In this context, CAs are exclusively designed to portray stereotypical genders (e.g., combining a female name and avatar). To challenge this quasi-standard, a 2x2 experiment (male/ female avatar x male/ female name) with 262 participants was conducted to investigate the effect of gender-mixed CAs. Our results indicate that users of CAs

with a stereotypical gender report higher service satisfaction and a partially higher perception of social presence for male CAs. However, the results do not reveal any differences in perceived empathy and competence. Thus, it appears that users prefer stereotypically CAs, which is in sync with current practice.