Singaporean alliance organizes geospatial-oriented AI challenge

In collaboration with AI Singapore, the Singapore Land Authority (SLA) has launched an innovative challenge centered on visual localization, aimed at addressing how AI can accurately extract camera pose data from 2D images. This is an essential concept in computer vision that refers to the exact position and orientation of a camera in 3D space relative to reference coordinate systems. AI Singapore is a partnership between economic agencies and academia. The search for new solutions that combine artificial intelligence (AI) and geospatial technology fits in with Singapore's role as a leader in technology and innovation.

AI technologies have revolutionized 3D mapping, benefiting smart city applications and improving quality of life. However, acquiring 3D data is expensive, hindering frequent or large-scale updates. To overcome this, researchers and technologists are investigating the use of AI to extract 3D information from readily available 2D images. Through advancements in visual odometry, the organizers of the AI challenge aim to expand 3D learning, making it affordable and sustainable for diverse real-world applications.

Participants of the challenge are tasked with developing AI models capable of accurately extracting camera pose data from a provided set of 2D monocular images. The results must be submitted in a prescribed plain text format. This exciting competition offers a platform for talented individuals and teams to showcase their expertise and innovation in the realm of AI.

How the challenge works

The challenge commenced on 26 May 2023 and will run until 26 July 2023, allowing participants ample time to develop their AI models. The winner announcement is scheduled for 14-16 August 2023, and the final presentation and award ceremony will take place from 19-25 August 2023. It will be hosted by the prestigious 32nd International Joint Conference on Artificial Intelligence (IJCAI-23) in the Macao Special Administrative Region of the People's Republic of China (MSAR).

Structured as an online AI competition, the challenge provides participants access to a comprehensive training dataset to aid in the development of their AI models. Upon completion, participants must submit their camera pose predictions in plain text format for evaluation against a designated test dataset. Performance evaluation will based on translation and rotation errors, with rankings displayed on both public and private leaderboards in real time. The top five participants with the highest rankings on the private leaderboard will be invited to submit their AI models and technical reports, which will then be reviewed and validated by an independent technical review committee comprising esteemed domain experts. The top three winners will earn the prestigious opportunity to showcase their solutions at the IJCAI conference and receive generous cash prizes.

The competition is open for individuals worldwide who are 18 years of age or older and have reached the age of majority in their respective countries of residence. To ensure fairness, each participant may only register one account and join a single team, with a maximum of five members per team. Those who choose not to join a team will be considered as a separate team.

Rich dataset for training purposes

Participants can expect a rich dataset for training purposes, consisting of 10,000 street-level monocular images in JPG format, accompanied by corresponding ground truth camera pose data in CSV format. The testing dataset, comprising 2,000 street-level monocular images in JPG format, will include both a public and private leaderboard partition, with specific details to be revealed later.

The allure of this challenge lies not only in the chance to contribute to cutting-edge AI research but also in the attractive cash prizes of US$20,000, US$10,000 and US$5,000 for the first, second and third-place winners, respectively.

For more info about the challenge, please see here.

Gardens by the Bay, Singapore.