Why I love and choose Machine Learning?

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"Tinkoff-Start" student program from "Tinkoff bank"

Members of the selection committee,

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During my Master's research experience at Skolkovo Institute of Science and Technology and Carnegie Mellon University (USA), I was fascinated by the beauty of reasoning about robotic tasks, such as large-scale localization and navigation for mobile robot. Despite the remarkable progress of object, scene, and action recognition in SLAM achieved by deep learning and ML algorithms, enabling artificial intelligent systems to generalize into unseen environments is still quite a challenging problem. Reasoning about the relationships between multiple objects –beyond recognizing them –, is the key to gain a deeper understanding of the data and generalize deep learning and machine learning methods to unseen cases. As such, this research has advanced various domains, such as image retrieval, image captioning, and object detection. I am most interested in how reasoning can guide robotics tasks such as semantic navigation, which include computer vision knowledge and **I am applying for such amazing "Tinkoff-Start" program from "Tinkoff bank" to extend my research pursuits into this field.**

During my research in **SLAM team** (**Robotics Institute at Carnegie Mellon University(USA) at Prof.Howie Choset (Nobel Prize winner in Robotics (Joseph F. Engelberger Award)))**, I proposed a novel lightweight 3D place recognition method in 3D-lidar based SLAM algorithm, SeqSphereVLAD, which is capable of recognizing places from a previous trajectory regardless of the viewpoint and the temporary observation differences. The results of my research work has been accepted for publication in **IEEE/ESJ IROS 2020** conference, where I have to present my research work in Las Vegas (USA) in October 2020 remotely. Now I am continue working remotely with SLAM team from CMU on TIE and TR-O journal papers, respectively. This is what makes me interested in doing science in ML and DL fields now and in the future with Tinkoff-bank.

I am most exciting to work in the field of Computer Vision as a part of ML field to self-driving cars and mobile robotics implementation for "Tinkoff-bank", because it appeals to me. I am very excited about this filed as a machine learning part of this educational program. First of all, why I want to take part at this program is because, I am glad to be finally able to get real experience in complex ML system, to get on the edge of the field, to find a new applications for my ideas. I absolutely believe that the knowledge I gained during my studies at the university, as well as via self-education, online courses and my past working experience is enough to carry on with the problems I will face throughout my work at educational ML program from "Tinkoff-bank". I want to implement my knowledge and skills on semantic navigation, robotic perception and scene understanding for mobile robots and self-driving cars for "Tinkoff-bank", as it closely relates to my research interest. My experiences in both machine learning, deep learning and robotics make me a good fit for this program. ML program from "Tinkoff-bank" will be a perfect place for me to pursue my skils and start building robots for "Tinkoff-bank".