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Letter of recommendation

To Whom It May Concern

Ms Anna Khadisova, born on 20.09.2000, has been working at our Center Robotics (CERI) for 6 months while she held the position of a student assistent.

During her tenure, Anna Khadisova consistently demonstrated exceptional critical thinking and problem-solving, strategic thinking, quick learning and adaptability, analytical and quantitative reasoning, and innovative thinking. Anna Khadisova played a pivotal role in the successful completion of an eye-gaze detection project, which involved both visualization and coding tasks. Her primary responsibility was to implement a mathematical model capable of determining eye gaze direction using foundational principles such as vector algebra (e.g., cross product), analytical geometry (e.g., parametric equations of lines, plane equations, and line-plane intersections), and linear algebra. In another project, titled "Human Pose Estimation Using YOLOv7 Despite Occlusions by a Robot," Anna applied Kalman and Particle filters to predict human keypoints in cases of occlusion, based on previous measurements. This involved extensive work with CNN models, matrices, that required a solid mathematical foundation in linear algebra, matrix theory, and statistical methods. Both filtering methods were crucial for handling the challenges of human pose estimation under partial visibility and dynamic environments. She was also involved in a project that utilized the Real-Time Data Exchange (RTDE) protocol and forward kinematics for Universal Robots to enable real-time communication between the robot controller and external systems for real-time monitoring. Anna demonstrated exceptional knowledge in mathematics-based disciplines and deep learning algorithms for human pose estimation, including their architecture and content. She showed a solid understanding of Convolutional Neural Networks (CNNs), and proficiency with tools such as CMake, CUDA, and Conda virtual environments. She worked extensively with Python libraries including Cython, PyTorch, torchvision, NumPy, Matplotlib, and mpl_toolkits for 3D data visualization. In addition, Anna has experience with computer vision tools such as Roboflow, where she created and labeled datasets for object detection algorithms. She also contributed to various visualization and data processing tasks. Anna participated in a project

utilizing the ZED2 camera for real-time eye-gaze detection. Her role included the installation and initialization of the camera, configuring parameters such as resolution, calibration, depth mode, and frame rate, as well as streaming video output, image capture, and obtaining depth coordinates for depth perception.

In addition to her professional skills, Anna exhibited a positive attitude and outstanding interpersonal skills. She was well-liked by colleagues and displayed a genuine ability to collaborate with others, creating a supportive and productive work environment

I am confident that Anna Khadisova will bring the same level of dedication, hard work, and passion to any academic or professional setting. This makes it easy to recommend Anna Khadisova to any further employer. Please feel free to contact me if you require any further information.

Fabian Schirmer
Research associate and PhD student