Nathan B. Corral
Frankenweg 26A 53225, Bonn
☐ *+49 160 9178 1918*
✉ *nathan.b.corral@gmail.com*

To: January 14, 2025
Robert Bosch GmbH
Renningen, Germany

Dear Dr. Caesar,

I am excited to apply for the PhD position in Data-driven Self-Assessment for Multimodal Perception in Automated Driving at Bosch (JobID REF217910P). This PhD aligns strongly with my academic background, practical experience, and aspirations to contribute to innovative research in autonomous driving technologies.

My passion for self-driving technologies has guided much of my professional experience. In my first role, I contributed to the development of an innovative LiDAR product by designing the visualization and filtering of point clouds using the C++ Point Cloud Library. My background as a Computer Engineer, combined with embedded systems experience, has provided me with insight into deployment, real-time operation, and safety considerations critical for self-driving cars. Additionally, I recently completed two open-source projects using the Robot Operating System (ROS 2), a widely adopted framework in self-driving car software such as Autoware. The objective of this work—to design a computer vision pipeline capable of deploying multiple state-of-the-art models simultaneously—highlights my practical experience with software for autonomous vehicles.

During my master's degree, I deepened my understanding of AI and robotics with a focus on applications in autonomous driving. As a student assistant, I contributed to an IROS publication on personalized path planning. My thesis introduced a novel transformer-based architecture for probabilistic prediction, which was applied to video and human pose generation, offering a strong foundation for research in multimodal fusion. With top marks in both my thesis and a self-driving cars course, I am prepared to begin a PhD in this domain.

What excites me most about this position is its focus on improving real-world relevance by assessing the importance of objects in autonomous decision-making. Developing metrics and self-supervised methods that bridge training metrics with operational performance is a fascinating challenge. I am eager to contribute to this effort by developing innovative solutions and collaborating with Bosch's diverse and dynamic research team, continuing the company's tradition of excellence in innovation.

Thank you for considering my application. I would be honored to contribute to your research and look forward to the opportunity to discuss this role further.

Best Regards,

Nathan B. Corral