

# MotionEngine™ Scout

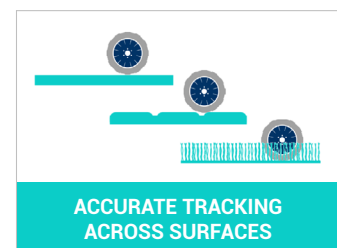
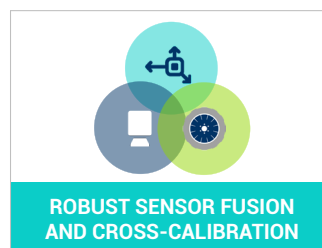
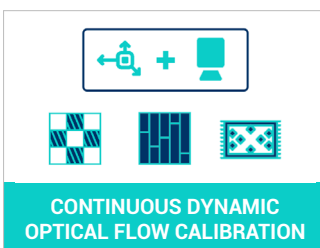
Successful terrestrial robots rely on the accuracy and robustness of their navigation algorithms and, in turn, the sensor information that feeds those algorithms. VSLAM and LIDAR systems can be impacted negatively when the environment cannot be tracked well, for example poor lighting, fast movements, and obstructions. During these conditions, highly accurate dead reckoning is crucial for maintaining performance and a smooth user experience. Autonomous systems relying solely on dead reckoning are even more dependent on high sensor accuracy to run without a camera or LIDAR. But each dead reckoning sensor has its own challenges - wheels can slip and fool their encoder, optical flow sensors measure distances differently depending on the surface, and IMUs are influenced by temperature changes and drift.

CEVA's MotionEngine Scout addresses these challenges by fusing data from a robot's wheel encoders, IMU, and optical flow sensor for a complete and robust dead reckoning solution. Its algorithms maintain the best possible performance by calibrating these sensors against each other. MotionEngine Scout uses this calibrated data to produce highly accurate dead reckoning information that reduces trajectory error by a factor of 5x in challenging scenarios, augmenting SLAM for all automated terrestrial robots.



## FEATURE HIGHLIGHTS

- ✔ High Accuracy Dead Reckoning – Lab-tested high-accuracy location and orientation information across changing surfaces
- ✔ Dynamic Cross Calibration – Algorithms monitor optical flow, IMU, and wheel encoder data to continually calibrate against one another sans factory calibration and maintain top performance
- ✔ Sensor Choice Flexibility – Low-cost MEMS from top sensor vendors supported
- ✔ Augmented SLAM Performance – Adds robustness to existing VSLAM and LIDAR systems during tricky scenarios
- ✔ Cost-efficient Navigation – High accuracy dead reckoning without the need for costlier camera or LIDAR components
- ✔ Simplified Integration – MotionEngine Scout provides a single interface point that combines the IMU, optical flow, and wheel encoder data into easily manageable output



## ABOUT CEVA

CEVA is the leading licensor of wireless connectivity and smart sensing technologies. We offer Digital Signal Processors, AI processors, wireless platforms and complementary software for sensor fusion, image enhancement, computer vision, voice input and artificial intelligence, all of which are key enabling technologies for a smarter, more connected world. We partner with semiconductor companies and OEMs worldwide to create power-efficient, intelligent and connected devices for a range of end markets, including mobile, consumer, automotive, robotics, industrial and IoT. Our ultra-low-power IPs include comprehensive platforms comprised of specialized DSPs coupled with an AI and other types of accelerators targeted for low power workloads, including 5G baseband processing, intelligent vision, voice recognition, physical layer processing and sensor fusion. We also offer high performance DSPs targeted for 5G RAN and Open RAN, Wi-Fi enterprise and residential access points, satellite communication and other multi-gigabit communications. Our portfolio also includes a wide range of application software optimized for our processors, including voice front-end processing and speech recognition, imaging and computer vision and sensor fusion. For sensor fusion, our Hillcrest Labs sensor processing technologies provide a broad range of sensor fusion software and inertial measurement unit ("IMU") solutions for AR/VR, robotics, remote controls and IoT. For wireless IoT, we offer the industry's most widely adopted IPs for Bluetooth (low energy and dual mode), Wi-Fi 4/5/6 (802.11n/ac/ax) and NB-IoT.

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