

## Applications in Instrumentation and Measurement

**W**e are excited to bring you this Special Issue, where we have selected a set of 10 articles covering the most topical application areas in our field – infrastructure, environment, automation, and healthcare.

The first set of four articles covers emerging technologies for Infrastructure and Safety. Starting with precision construction, we bring you an *Experimental Test of Ground Settlement Measurement Using Distributed Fiber Optic Sensing Technology*, which covers a new study showing more precise ground settlement measurements in construction projects using zigzag fiber optic cables. Next, we have the *Application of the Measurement Method of Building Surface Cracks Based*

*on Image Processing Technology* to enhance the safety of existing buildings with more precise inspections. Our electricity grid infrastructure also gets a boost from the development of smarter power lines with *Enhancing Transmission Line Safety: Real-Time Detection of Foreign Objects Using MFAMM-YOLO Algorithm*, presenting an AI system that performs real-time monitoring. On the roads, *Vision-Based Accident Anticipation & Detection Using Deep Learning* introduces technology for driver safety.

We then transition to advanced environmental monitoring with a set of three articles. *Instrumentation and Measurements of Magnetic Coil Schumann Resonance Receivers* looks at detecting faint electromagnetic signals related to global lightning activity and Earth’s magnetic field. Still looking to the skies, the *Research on Atmospheric Turbulence Observation by LiDAR Based on Imaging Detection Technology* measures atmospheric turbulence at 0.75 m intervals via a new LiDAR system. Then to contrast these applications, we look under the atmosphere and measure light pollution in Warsaw by *Using a Single Sky Quality Meter for Simplified Light Pollution Changes Analysis Across Big City*.

To round off, we have a set of three articles focusing on automation and healthcare. Readers with an interest in precision agriculture will find *A Method of Robot Picking Citrus Based on 3D Detection* an interesting piece on automated fruit ripeness identification in orchards. New automation technology via smart real-time machine control is introduced in the article *Real-Time Recognition of the User’s Arm Gestures in 2D Space with a Smart Camera*, which has a vast impact on robotics, gaming, and education. We end our special issue with instrumentation and measurement in healthcare by looking at *Design, Development and Analysis of an Image Processing based Advanced System for Testing, Calibration and Type Approval of Blood Pressure Devices*.

We hope you enjoy reading the applications of instrumentation and measurement in this Special Issue as much as we have enjoyed putting it together.

