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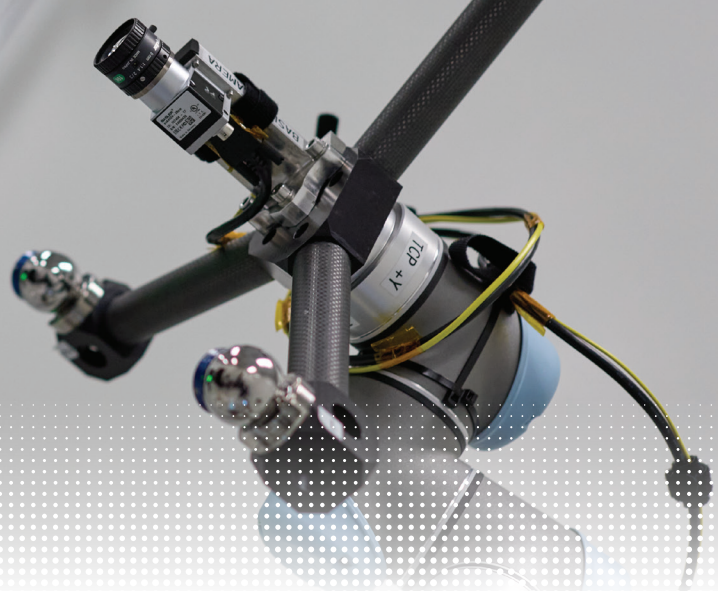
pixeltraq

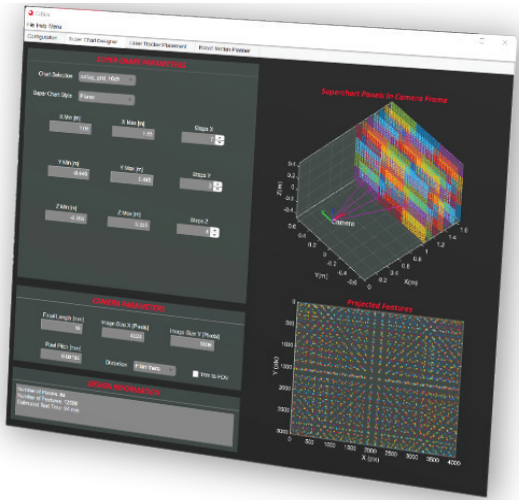
FLEXIBLE CAMERA CALIBRATION



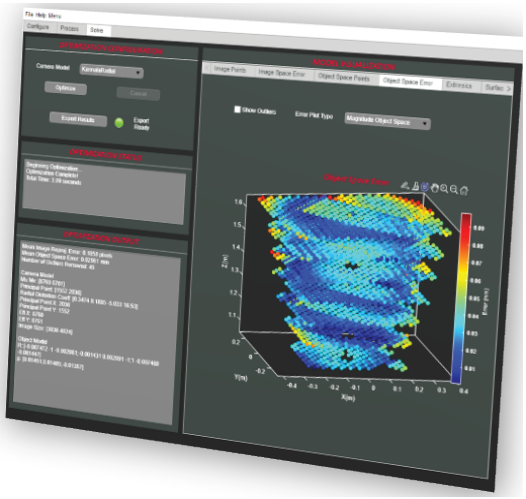
CAPABILITIES

- PixelTraq's system architecture allows creation of precision calibration targets that meet your field of view, working distance, area coverage, and extrinsic datum needs
- Complete geometric (instrinsic and extrinsic) parametric calibration
- On-axis and volumetric characterization of focus via spatial frequency response
- Options for calibration wavelength as well as multi-wavelength calibration for testing chromatic variations
- Scalable from telephoto to super wide field of view configurations
- Bring your own camera; we can support all common camera brands as well as custom cameras
- Export to your preferred model file format

The Quartus PixelTraq process* offers highly accurate, traceable camera calibrations tailored to your application's needs. Available as a service for customer camera calibration or as the foundation for a turnkey vision system.



Configurable calibration scenes include multi-layered planar, curved and application specific high density composite charts

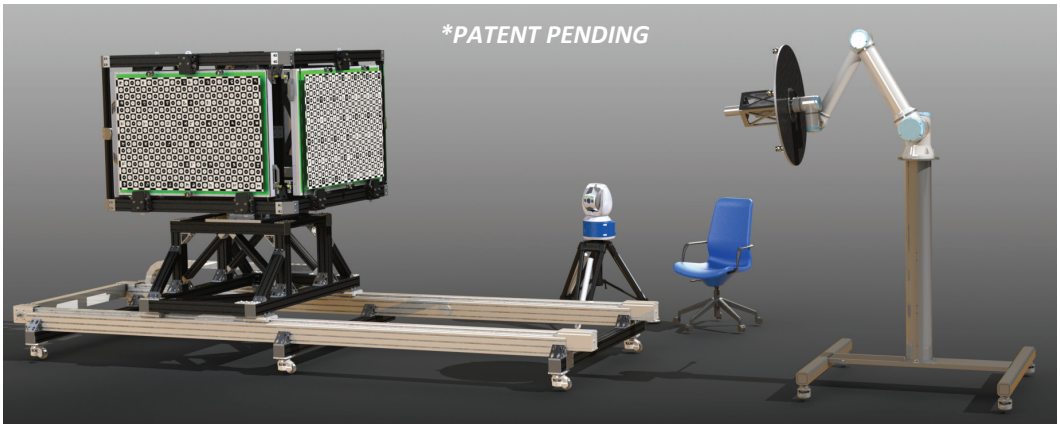


Object space reprojection error analysis included in the calibration for real-world accuracy predictions and quality assurance

APPLICATIONS

- Factory Automation Vision Systems
- Aerospace Vision Systems
- Autonomous Driving Sensor Fusion
- Visual Servo Systems
- IOT Cameras
- Industrial Metrology Systems
- Medical Imaging
- Machine Vision Research
- 3D Scanning
- Remote Sensing
- Sensor Validation
- IMU Correlation

When full FOV calibration accuracy, traceable datums, or target working distances are important, PixelTraq can help you meet your requirements.



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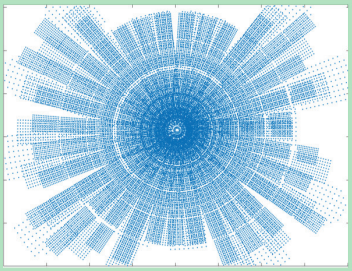
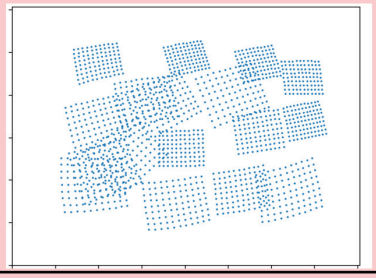
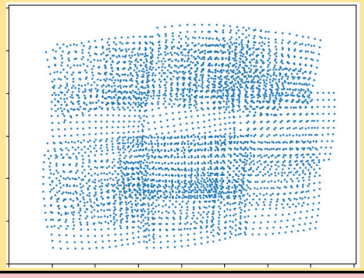
Case Study Camera Specs:

- Sensor: Basler acA4024-29um
- Lens Focal Length: 2.8mm
- FOV: 156°
- Focus Distance: 1m

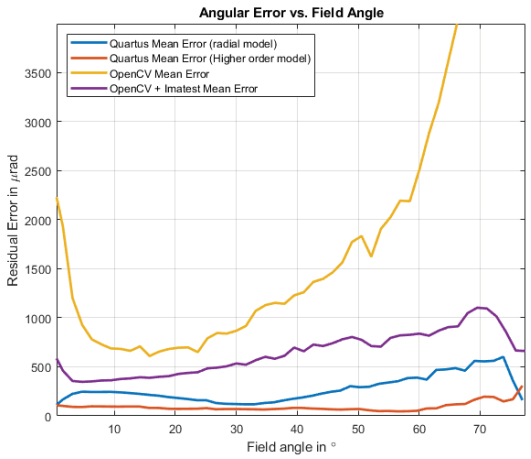
PIXELTRAQ STANDS OUT AMONG THE COMPETITION - CASE STUDY

	pixeltraq	OpenCV	OpenCV + High Quality Chart
Features	>38,000	1683	4114
Traceable Extrinsics	✓	✖	✖
FOV Coverage			
Data Collection	Automated	Manual	Manual
Mean Reproj. Error	Calibrated: 0.36 pixels Audit Set: 0.37 pixels	Calibrated: 0.30 pixels Audit Set: 2.1 pixels	Calibrated: 0.28 pixels Audit Set: 0.91 pixels
Object Space Reproj. Error	0.48mm	2.31mm*	1.16mm*

**Since conventional methods do not result in traceable extrinsic calibrations, the PixelTraq software was used to help these methods determine object space error.*

CASE STUDY SUMMARY

- PixelTraq provides a more robust and accurate camera calibration for real world use
- Traceable audit data sets reveal that low reprojection errors in calibration data is not a guarantee for low error once installed
- PixelTraq is the only calibration approach that provides traceable extrinsics for an accurate estimate of pupil pose with respect to camera datums



Specification	Min	Max
Payload Range	0kg	10kg
FOV Range (Full Angle)	0°	>160°*
Object Distance Range	0m	4m**
Camera Interfaces	USB 3.0, GigE, Camera Link, CoaXPress (CXP)	
Intrinsic Camera Models	Pinhole, Kannala, Brown-Conrady, Heikkila, Stereo ***	
Distortion Terms	Radial, Non-Radial Tangential	

* FOV range varies with work distance and calibration network geometry.
** Extended working distances available upon request.
*** Additional or custom camera models available upon request.

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