CAPABILITY SHEET · 2026

Hammad Kamran, PhD
Founder and principal consultant
HK Robotics and Metrology

Measurements you can *defend*. Robots that hit their targets.

Independent metrology and robotics consultancy for aerospace, automotive and precision manufacturing. Measurement uncertainty, laser tracker networks, first article inspection and robot–metrology integration, remote or on site, worldwide.

SERVICES

UNC — Measurement uncertainty and capability

GUM-based uncertainty budgets, measurement system analysis and decision rules, so results hold up with customers and auditors.

LVM — Laser tracker networks and large-volume metrology

Station layouts simulated before you build, jig and fixture verification, interim tests and thermal control.

FAI — First article inspection and inspection automation

AS9102 reports with full characteristic accountability, and PolyWorks scripts that make inspection repeatable.

ROB — Robot–metrology integration

Accuracy assessment and metrology-guided positioning, from feasibility trial to production cell.

AUTO — Automotive metrology

Body-in-white gap and flush, robot cell calibration, fixture and jig validation, and CMM to tracker correlation.

TRN — Training

Uncertainty, GD&T for inspection, tracker set-up and PolyWorks, written around your parts and equipment.

EXPERIENCE

- **Metrology lead, AutoRAMP** (Airbus UK, Cranfield). Code that guided several industrial robots to assemble a 15 m wing module.
- **Research Fellow, Wing of Tomorrow** (Airbus UK). Metrology systems lead, including automated in-tank inspection.
- **Automation and metrology engineer, SAFRAN Nacelles.** AS9102 sign-off on nacelle components and engine casings.
- **PhD**, metrology for wing assembly, Cranfield University (2024). MSc and BEng, City, University of London.

EQUIPMENT AND SOFTWARE

Laser trackers, portable and fixed CMMs, 3D scanners and iGPS. PolyWorks (including scripting), Spatial Analyzer and MATLAB. Independent of any equipment maker.

STANDARDS AND METHODS

GUM (JCGM 100) · JCGM 101 Monte Carlo · ISO 14253-1 · AS9102 · AS9100 · ASME Y14.5 · ISO GPS · ISO 10360-10 · ASME B89.4.19 · ISO/IEC 17025

01 Discovery call
Free, about 20 to 30 minutes. No drawings needed.

02 Written proposal
Scope, deliverables, timescale and cost. NDA first if you need one.

03 Delivery
Analysis, simulation, measurement plans, trials or integration.

04 Handover
A report your quality team can audit, plus training.

Book a 20-minute call
metrologybot.com/contact

hammadkamran0@gmail.com
linkedin.com/in/hammad-kamran-b3a0947b
metrologybot.com