

Dr Burak Suslu

Senior R&D / algorithm engineer · open to UK roles · available immediately

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IMPACT

- Founded and ran a **5-yr industrial-automation business** serving state-run oil & gas — high-voltage retrofits delivering **20% energy-efficiency uplift** on the cracking-tower programme; delivered on time, under budget, with follow-on maintenance contract.
- Built and shipped **AcoustR** (acoustr.com) — acoustic diagnostics for engines and machines; live with early customers. First product application of MOSOF / NDCI.
- Published **3 first-author papers in *Sensors* (MDPI)** (2023, 2025, 2026) defining MOSOF and the Normalised Diagnostic Contribution Index (NDCI).
- Defended PhD at the **Cranfield IVHM Centre** (Nov 2025); reduced an 18-sensor B737-800 ECS to a **12-sensor Pareto-optimal suite** at ~0.69 normalised diagnostic performance.
- Shipped **open-source reference implementations** at github.com/ssl8 — MOSOF (NSGA-II), NDCI calculator, Pareto data pipeline; with an annotated walkthrough essay.
- Active **peer reviewer** for *Sensors* (MDPI) and adjacent venues in sensor optimisation, IVHM, and diagnostics.

POSITIONS & VENTURES

Founder · AcoustR **Current**

Acoustic diagnostics for engines & machines · acoustr.com

Lead venture — product application of the MOSOF / NDCI sensor-optimisation methods, building diagnostic systems that work from the sound an asset already makes. Currently live with early customers.

Founder · Sorryry (prototype) **Current**

Sensor-network design tooling · sorryry.com

Applied tool packaging the MOSOF / NDCI workflow for engineering teams designing or auditing sensor networks. Currently in prototype.

Independent technical advisor **Current**

Optimisation · IVHM · Diagnostic system design

Selective consulting with engineering and R&D teams on sensor-optimisation audits, custom multi-objective frameworks, and ongoing technical advisory.

Founder & Lead Research Engineer · SSL Elektrik-Elektronik **Jul 2017 – Apr 2022**

Industrial automation & high-voltage systems · state-run oil & gas · Türkiye

Founded and ran a five-year applied R&D and industrial-automation business serving state-run oil & gas — drove **20% energy-efficiency uplift** on the cracking-tower retrofit programme through algorithm-driven control of high-voltage industrial systems in hazardous environments. Integrated IoT sensors and ML-driven decision logic into legacy machinery; managed the full R&D lifecycle from functional specification to commissioned on-site hardware. Cross-functional delivery with utilities, operators, and EPC contractors.

SELECTED PUBLICATIONS

MOSOF with NDCI: A Cross-Subsystem Evaluation of an Aircraft for an Airline Case Scenario **2026**

Sensors 26(1), 160 · Suslu, B., Ali, F., Jennions, I. K. · DOI: 10.3390/s26010160

Cross-subsystem evaluation applying MOSOF + NDCI across Engine, Fuel, EPS, and ECS subsystems for an airline-case aircraft. Compact Pareto-efficient sensor suites with knee solutions of ~12 sensors at ~0.69 normalised diagnostic performance.

NDCI Integration to Multi-Objective Sensor Optimisation Framework — An ECS Case **2025**

Sensors 25(9), 2661 · Suslu, B., Ali, F., Jennions, I. K. · DOI: 10.3390/s25092661

Introduces the Normalised Diagnostic Contribution Index and integrates it into MOSOF. Validated on the Environmental Control System of a reference aircraft.

Understanding the Role of Sensor Optimisation in Complex Systems **2023**

Sensors 23(18), 7819 · Suslu, B., Ali, F., Jennions, I. K. · DOI: 10.3390/s23187819

Foundation paper for the doctoral programme. Frames sensor selection as a multi-objective rather than single-axis problem.

EDUCATION

PhD · Transport Systems (Sensor Optimisation) **Apr 2022 – Nov 2025**

Cranfield University · School of Aerospace, Transport & Manufacturing · IVHM Centre

Thesis: *Sensor Optimisation for Aircraft Health Management Systems* (defended Nov 2025). Produced MOSOF and NDCI; evaluated across Engine, Fuel, EPS, and ECS with repeated nested cross-validation. Supervisors: Prof. Ian K. Jennions; Dr Fakhre Ali.

MSc · Advanced Electrical and Electronic Engineering (Merit) 2019

Brunel University London, UK

Final project: high-efficiency preamplifier design for radiation sensors in high-temperature well-logging applications.

BEng · Electrical & Electronics Engineering (2:1) 2017

Erciyes University, Türkiye

Final project: design and implementation of a compact radar prototype with a 2D object-tracking system.

REVIEWING

Active peer reviewer for *Sensors* (MDPI) and adjacent venues in sensor optimisation, IVHM, and diagnostics.

TECHNICAL SKILLS

R&D & methods. Multi-objective optimisation · Pareto-front analysis · Multi-objective genetic algorithms (NSGA-II) · Sensor fusion · Prognostics & Health Management (PHM) · Fault Detection & Isolation (FDI) · Signal processing · Information theory · Machine learning · Fuzzy logic

Modelling & simulation. MATLAB / Simulink (model-based design) · System modelling · Hardware-in-the-Loop (HIL) validation · SESAC platform · High-fidelity fault simulation

Software. Python · NumPy · SciPy · scikit-learn · pandas · Jupyter · C++ · VHDL · ANN · Git

Validation. V-Model verification · Statistical process control · Repeated nested cross-validation · Noisy / high-dimensional datasets

Domains. IVHM · Aerospace systems · Sensor networks · Condition monitoring · Acoustic diagnostics · High-voltage automation · Oil & gas · Industrial IoT

Languages. English (fluent) · Turkish (native)

REFERENCES

References available on request. Doctoral supervisors at Cranfield University's IVHM Centre, plus industrial referees from prior automation work, can be supplied for academic and industry roles respectively.