

# Theo Hatzis, MSc

## Senior Electronics Design & Semiconductor Test Specialist

*“Der Fuchs” (The Fox)*

### ★ Senior Electronics Architect & Semiconductor V&V Specialist

Delivering clarity in complex silicon through measurement-driven engineering, deep system insight, and two decades of cross-domain hardware expertise.

**Engagement Model:** Specialist Surge Capacity (primarily Outside IR35). Open to Fixed-Term Contracts as a flexible, cost-effective senior option, and to 6-month+ permanent roles for programmes where appropriate.

I provide a technical grid aligned to your SOW, FTC structure, and stated requirements to ensure clarity and alignment.

**Location:** Swindon–Oxford–Bristol Triangle (Wiltshire/Birmingham-based)

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**Citizenship:** UK & EU (Dual National)

**Security Clearance (SC):** Previously Vetted

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## Profile Summary

### The Bridge Between Design, Production, and the Customer.

A driven problem-solver specialising in Silicon Triage, rapidly identifying elusive system-level stressors, power-delivery failures, and PVT (Process, Voltage, Temperature) corner exceptions (TT, FF, FS, etc.). I resolve root causes of instability in complex mixed-signal ICs through advanced measurement techniques and by defining robust datasheet features and limits. This prevents costly design or metal revisions, accelerates time-to-market, and delivers lasting impact before moving on to the next challenge.

My expertise spans the full hardware lifecycle: from leading M25 infrastructure projects for the Highways Agency, to validating 3G/4G/LTE mobile SoCs, to developing concepts for high-efficiency GaN/SiC power topologies and bidirectional DC-DC converters for low-power (<500 W) applications such as e-bikes, drones, and tethered aerial platforms. I am a hardware-first engineer who uses advanced automation (Python/PyVISA) and embedded insights to ensure silicon reliability in demanding environments — experience built over a twenty-year career in precision semiconductor testing with leading clients in the Munich region.

Alongside my electronics foundation, I bring a strong background in Chemical Sciences (electrochemistry and spectroscopy). This multidisciplinary grounding enhances my diagnostic intuition across MedTech, scientific instrumentation, battery systems and BMS, advanced sensors, photonics, and emerging quantum photons innovations, where physical-layer behaviour and materials interactions are critical.

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## ✂ Specialist Pillars

- **Silicon Validation:** Expert Post-Silicon bring-up and characterisation of complex PMIC/PMU chipsets. Proficient in PVT-corner validation, silicon-to-model correlation, and advanced MEMS sensor testing using wafer probers.
- **Mixed-Signal & Power:** Specialist in DCDC (Buck/Boost), SiC/IGBT gate-driver stability, and multiphase power-converter architectures. Experienced in high-speed 200 ns controlled trapezoidal loads and dynamic validation of high-performance power stages.
- **System Architecture:** Design Authority across medical devices (ISO 13485), scientific instrumentation, UK highways infrastructure (TRG 1068), and mobile platforms. Influenced SoC ball-out and interface definitions for

major silicon providers such as ST and Motorola, bridging hardware, firmware, and system-level integration.

- **V&V Automation:** Extensive use of Python (Pandas, NumPy, PyVISA, Plotly) for 24/7 automated lab characterization and statistical analysis. Familiar with Pytest, CMAKE, Dockerised Jenkins Agents, and ARM toolchains within the **MeasX** methodology (Measurement Experiments).

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## Professional Expertise: Semiconductor Hub (Munich Großraum — Freising, Germering, Nürnberg)

Client	Core Focus & Impact	Period
Logiicdev GmbH (Remote, Graz)	Chief Adviser / CTO: Led Horizon EU bids; Battery/Energy Systems, Post-basic BMS, AI/ML & UAV HW. Mentored interns on AI/ML in battery projects. Supported product design with India-based teams and guided students on early-stage university projects.	2020–2025
Texas Instruments (Freising)	<b>ISFET Characterisation:</b> Setup of custom microfluidics MEMS wafer-prober stations.	2023–2023
Renesas (ex-Dialog), Germering	<b>Contractor Mixed-Signal:</b> Validation & triage for high-efficiency BOOST converters.	2022–2023
Infineon AG (Am Campeon)	<b>Post-Si Component Verification:</b> Automotive-grade SiC/IGBT gate driver & FMEDA.	2021–2022
Infineon AG (Am Campeon)	<b>Embedded T&amp;V:</b> FMCW radar embedded validation in an Agile/Bare-Metal environment.	2020–2021
Texas Instruments (Freising)	<b>Validation Expert:</b> Low-noise, dynamic validation for high-performance DCDC stages.	2018–2020
Dialog Semiconductor (Germering)	<b>Evaluation/Validation Engineer:</b> Mixed-Signal PMIC (Buck DCDC) evaluation on key milestones.	2018–2019
Texas Instruments (Freising)	<b>Validation Engineer:</b> Managed DCDC and PMIC validation cycles for production release.	2014–2017
Intel Mobile Communications (Nürnberg)	<b>Senior Baseband Digital Design Engineer:</b> 2G/3G/4G platform design verification & FAE support.	2010–2014
Ericsson/ST (Nürnberg)	<b>Consultant HW:</b> Power systems on FPGA-based 3GPP development platforms; 3-phase core supplies and ideal-diode OR-ing. Contributed to the early Ericsson 150 Mbit/s LTE phone demonstrator showcased at the 3GSM Congress.	2006–2009
Texas Instruments (Aalborg, Denmark)	<b>Baseband Engineer:</b> WTBU 2G and 3G platform validation.	2004–2005

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## UK Engineering Foundation (1992–2003)

- **Highways Agency (M25 MIDAS):** Acting Design Authority for Outstations. Implemented 4 kV galvanically isolated RS485 for high common-mode rejection and resolved 30 m OATS EMI issues under TRG 1068.
- **Medical & Scientific Technology:** Developed safety-critical electronics for ISO 13485 diagnostics, neonatal infusion pumps, Gamma Camera organ-recovery monitoring systems, FIA/FPIA diagnostic platforms, and MRI/NMR and XRF benchtop instrumentation.
- **Traffic & Pollution Monitoring:** Designed high-fidelity analog front-ends for electrochemical sensors and developed Weigh-In-Motion (WIM) and vehicle-detection systems for roadside infrastructure.
- **Mobile Platform Architecture (Psion/Sendo):** Design Lead for ARM-based handhelds, covering 2G/WLAN integration, SAR compliance, and network approvals. Co-authored early requirements for the MIPI Alliance

## Engineering Toolkit




























- **Hardware Design:** Mixed-Signal System Design, CPU/FPGA Integration, Gate Drivers (GaN/SiC), PDN, LISN/OATS, 2-quadrant loads.
  - **Automation & Data:** Python (Pandas, NumPy, Pytest, PyVISA), MATLAB, LabVIEW & TestStand™, PXI via Python.
  - **Embedded & Debug:** ARM Toolchains, Bare-Metal C, Trace32 (Lauterbach), JTAG, I2C/SPI.
  - **CAD/Sim:** Altium Designer, OrCAD, Mentor Graphics, LTSPICE, SIMetrix, PLECS.
  - **Compliance:** ISO 26262 (Automotive), TRG 1068 (UK Highways), ISO 13485 (Medical), EN60950 (IT Hardware).
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## Technical Credentials

- MSc, Real-Time Systems – London South Bank University
  - BSc, Chemical Sciences – University of East Anglia
  - Foundational expertise: Physical Chemistry & Spectroscopy — the source of my physical-layer diagnostic intuition for sensor-to-silicon triage.
  - Advanced Training: Electrode Kinetics (Southampton); RF Systems (Surrey); LabVIEW.
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## Advisory Insights & Emerging Frontiers

Focused expertise gained through direct R&D, CTO-level advisory, and Horizon EU collaborative bids in New Dawn Tech.

- **Semiconductors & Power:**  Power ICs & WBG (GaN/SiC) |  Photonics / PAM4 |  Connected Sensors
  - **Energy & Transport:**  BMS & Storage (Solid-State, Li-ion, Na-ion) |   EIS (Electrochemical Impedance Spectroscopy) | H<sub>2</sub>  Fuel Cells |  Photovoltaics |  Aerospace
  - **MedTech & Life Sciences:**  Point-of-Care Diagnostics |  ISFET & Lab-on-a-Chip |  Microfluidics |   EIS Imaging
  - **Infrastructure & Lab:**  Intelligent Transportation |  Metrology |  Autonomous Test Labs |  Industry 5.0 |  Digital Twins |  Quantum Computing |  Critical/Environmental Infrastructure Monitoring |  Forest-Fire Technologies
  - **Industrial Materials Analysers:**  NMR |  XRF |  Raman |  Hyperspectral Cameras
  - **Collaboration Frameworks:**  Horizon EU RIA (Cluster 4/5/5G Vertical Experiments) | Grant Portfolio Strategy | Consortium Funding Bids & WP Leadership
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## Endnote

The moniker “**Der Fuchs**” originates from my time contracting at Ericsson (later as ST Ericsson) located in Franconia Germany. It reflects the German idiom \*\*\*“**Der Fuchs findet den Fehler, den keiner sieht**” — **the fox finds the flaw no one else sees [our clever fox]**. — a recognition of my diagnostic intuition and ability to resolve elusive system-level issues. I remained with the programme for four years — unusually long for a contractor — reflecting the trust and reliance the team placed in my designs and diagnostic work

Having lived and worked extensively in Denmark and Germany, I remain particularly open to opportunities across the EU, DACH, EMEA region, and the warmer Mediterranean countries.