

## Theo Hatzis, MSc

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Engineer with experience in mobile platform design verification, post-silicon component verification, silicon validation, and schematic design capture work seeks new projects work in hardware design and test; or post-silicon semiconductor testing, as well as other work relevant to my experience areas

**experience:** includes electronics design and development of medical devices and diagnostics equipment, scientific instruments, highways informatics subsystems, wireless-handheld terminals; hardware verification on 3G/4G modems; validation of DCDC converters and PMICs; component verification of high-voltage IGBT and SiC gate drivers

**interested in:** Test-related work on sensors-based systems, sensor-conditioning and interfaces, component verification of power devices (DCDC/PMICs, MOSFETs, IGBT, SiC, GaN and gate drivers), also in ADC and DAC and RF. Automation test in MATLAB, Python, Teststand and LabVIEW. Visualisation and analysis of test data in pandas, numpy, matplotlib, and plotly. Automation test for automotive drives, power inverters and batteries. SPICE analogue design simulations

**not interested in:** software development roles with agile, scrum, codebase builds, toolchains, WSL2, Ubuntu, MinGW, ninja, jenkins, cmake, docker, unit-testing, integration, system, end to end, testing except for small tasks in a primarily hardware-based test project

## Experience Areas

### Semiconductors

- SiC and IGBT high-voltage gate driver component verification
- Evaluation of PMIC Chipsets and Validation of DCDC Devices
- Verification of 3G and 4G baseband, associated interfaces, RF transceiver, PA and RFPMIC
- DCDC efficiency evaluations. Quiescent current measurements
- Spread-spectrum modes, noise emissions measurements
- FMEDA pin faults; Fault states
- Competitive analysis and side by side
- DCDC converter measurements, protections, startups, shutdowns, ripple, load transients, line transients, inductor currents and much more
- Correlations between ATE and simulation results
- Characterization over the temperature range
- ADC measurements, gains, offset, INL, DNL, resolution and effective sample times
- PRQ and Datasheet conformance; and application notes
- Test automation scripting in MATLAB, Python, C#, Teststand and .NET/Python Adapters
- Test reports, component verification reviews
- Use of bare-metal in validation runs, augmenting VISA, with many topics

### Hardware design

- Concept design. Analysis of the requirements, as well as design and implementation based on the requirements specifications
- Component technology selection
- Design of 8/16/32 embedded microprocessor applications, analogue, digital, ADCs, DACs and interfaces
- Design of FPGA and embedded micro boards
- Assisted with product conformance tests, EMV, EMC, CE, Sars, FCC, UL, Safety and Environmental performance on industrial IT and Medical equipment
- Circuit Design and PCB Layout Reviews
- Highways infrastructure RS-485, V.29, V26b, line bias and protection devices on copper circuits
- Design documentation and Test Verification documentation

- Electronics career, in a nutshell, on Medical and Therapeutics devices, Wireless-handheld Terminals, 3G/4G smartphone devices, FPGA boards power, distribution, and temperature, Traffic monitoring and data acquisition interfaces with magnetometer arrays, inductance loops, weigh-in-motion, and pollution sensors; highways infrastructure projects subsystems, industrial materials analysis, and photovoltaics

### Hardware Verification

- Designs Verification and Validation documentation. Prototype and Module testing
- Board functional test, including PSU testing
- Clock jitter, Eye diagrams and histogramming measurements
- JTAG, Lauterbach Power Trace32, I2C Analyser, Logic Analyser, Clocks Jitter, SIM test, USB test

### Equipment, Tools and Software

- Spotfire, Python, Matplotlib, Numpy, Pandas, Plotly, YAML, PyVISA, Ninja2 and PyVISA
- Visual Studio, VSC, PyCharm, Teststand, LabVIEW, GIT, Matlab, C# and Teststand
- Mentor Graphics (Expedition), Protel SE (now Altium) and OrCAD
- Simulation with LTSPICE and Simetrix
- Equipment: Keithley 2400, 2450 2460, 2000/2001, Agilent B2912, 335600, 34465A, N6705A, 90408A, 91600X, Tektronix 3022 Lecroy HDO8108A, Tektronix 4000/5000, Rohde Schwarz FSW8 and CMW500; Lauterbach Power-Trace and JTAG debugger
- JAMA, Jira and Kanban

### Training

Courses in RF Circuit and System Design, TestStand, LabVIEW, EMI, ESD, Spectrum Analyzer, Allegro/Cadence, TIBCO Spotfire, MSc (distinction), BSc(Hons) and HNC(BTEC)

### Projects

*Component Verification Engineer*, Infineon Technologies AG, PS ATV, Oct 2021 – June 2022 [Hays]

- Component verification on high-voltage IGBT/SiC gate drivers; Test reports, verification reviews

*Test and Verification Engineer for Radar Applications*, Infineon Technologies AG, Oct 2020 – Mar 2021 [Hays]

- Software development, 60GHz Radar Sensors SDK and GUI tests

*Validation Expert*, Texas Instruments GmbH, July 2018 – June 2020 [Hays]

- Device characterization and Bench validation of DCDC converters

*Application Engineer*, Dialog Semiconductor GmbH, October 2017 – April 2018 [Hays]

- Mixed-signal PMIC Chipset DCDC Buck evaluation and documentation

*Validation Engineer*, TI Deutschland GmbH, August 2014 – September 2017 [Hays]

- Device Characterization and Bench validation of DCDC Buck, Buck-boost and Charge pump devices

*Senior Baseband Designer (Digital)*, Intel Mobile Communications GmbH, February 2011 – January 2014 [ERL]

- Intel XMM series XGOLD 2-4G modem reference designs verification

*Senior Baseband Designer (Digital)*, Infineon Comneon GmbH, August 2010 – February 2011 [ERL]

- Infineon XMM series XGOLD 2-4G modem reference designs verification

*Hardware Consultant*, ST Ericsson AT (Ericsson GmbH), Jan 2006 – Dec 2009 [Harvey Nash]

- Concept design and implementation in power and distribution on early access FPGA-based boards intended for 3G+ and 4G protocol stack development and LTE demonstrator

*Baseband Engineer*, Texas Instruments A/S, Oct 2004 – Dec 2005 [WAC]

- 3G Mobile platforms designs verification. Validation test documentation.