Theo Hatzis

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- Electronics Design and Test Engineer -

Versatile engineer with over 30 years of profound experience in the design of electronics and systems in various industries and senior roles. I am available on a project basis. My recent freelance projects include platform design verification for 3G and 4G modems, semiconductor validation and characterisation of DC/DC and PMICs, and development of embedded 60GHz radar sensors. I hold a master's in Computer Sciences with courses in real-time OS, computer architecture, embedded systems, control theory, sparing, formal methods, and robotics systems.

- *Roles that combines hardware development or test with automation of measurement systems and test benches*
- *Languages include Python (10y), C# (10y), Teststand (5y), MATLAB (2y), and possibly several others*
- *A casual user of API and Test Frameworks, Build Tools, Toolchain, Jenkins, Docker and WSL2*
- *An already accomplished hardware developer can design bench test assemblies, jigs, and other supporting electronics for verification and validation testbench scenarios. I have designed extensively with Mentor Expedition, Protel (now Altium), OrCAD in several senior and lead hardware design engineer roles over the employed years*
- *Expertise in verification and validation of Interfaces, LTE Modems, PA, RFPMIC and Power Semiconductors*
- *Available, on a project basis, in Germany on a predominately onsite basis*

- Areas of Interest -

- *Solid-state components verification and validation*
  - *Applications*
  - *Temperature characterisation*
  - *PMIC and DCDC Verification*
  - *Components verification for DCDC power and PMIC devices*
  - *Other Components verification/Post-Silicon - ADCs, DACs, MOSFETS, I/Fs, TRCVRs*
  - *Magnetic and Spectroscopic Gas Sensors*
- *Hardware development*
  - *Requirements capture, architecture, components technology selection*
  - *Schematic design capture of microprocessor applications board and interfaces*
  - *Simulations in SIMetrix and LTSPICE*
  - *Remedial and maintenance design. Issues resolution*
  - *Medical and Scientific Equipment design*
  - *Environmental performance. Approvals and Safety standards of IT and Medical Equipment*
  - *Sensors conditioning and interfaces*
  - *Automotive sensors*
- *Automation Measurementation*
  - *RF and PA measurements, RFPMU, Power and Battery consumption measurements*
  - *Sensors and Interfaces*
  - *Sensor testing - Magnetometers, Gas sensors, Radar sensors, FMCW and LiDAR*
  - *Automation software development and Test cases*
  - *EV Battery testing. Power electronics, Motor drives, Bridges, Inverters, DCDC Conversion*
- *Software*
  - *Python with Pandas/Numpy, C#, Pythonnet, Teststand, YAML, Events triggered bench forcing constellations with PyVISA.*
  - *C#, Python Jira, Git/Bitbucket, Docker, Jenkins, PyTest, Allure, Cmake, WSL2, Ubuntu and Toolchains. MSBuild, Visual Studio, PyCharm. SW Build tools*

- Experience Areas -

Electronics Design

- *Concept design. Requirements analysis, design from requirements*
- *Design and Test Verification Documentation*
- *Board level 8/16/32 embedded microprocessor, analogue, interfaces, and power design*
- *Component technology selection*
- *Design and PCB Layout Reviews*
- *Product approvals EMV, CE, Sars, FCC, UL, Safety and Environmental performance*

- *Designs Verification and Validation documentation. Prototype and Module testing*
- *Maintaining and remedial design*

Semiconductors

- *Fast Vin ramps, Vin glitch, Triangular loads, Triangular Vin measurements*
- *controlled 50ns trapezoids and traiangualar loads forcings*
- *Custom jig design, forcing conditioning of line steps and load steps*
- *Bench automation with Teststand, some LabVIEW, VISA, C#, Python API PyVISA*
- *design of high-speed current forcing dynamic test-loads*
- *Efficiency measurements*
- *Positive and negative inductor currents on single and Multiphase bucks*
- *Emissions and Spread spectrum modulation verification*
- *Validation on DCDC Startups and shutdowns Protections*
- *Temperature and characterisation and issues assessments*
- *High expertise in all automation measurements*
- *Improves quality of measurements for datasheet in industry*

Tools

- *Schematic design, Mentor, OrCAD, Protel (Altium), PCB Floorplanning*
- *Visual Studio, VSC, PyCharm, Teststand, LabVIEW, GIT*
- *LTSPICE, SIMetrix/SIMPLIS, OrCAD, Protel (now Altium), Mentor Expedition, Cadence, PCB Floorplanning*
- *Visualisation tools in Spotfire, matplotlib and Seaborn*
- *JTAG, Lauterbach Power Trace32, I2C Analyser, Logic Analyser, Clocks Jitter, USB test*
- *Bench Automation with PyVISA and C#*

Other Experience

- *Lab bench scripting in C#, Python, Testsand and some LabVIEW*
- *Basic CMake, Docker, Pytest, Allure, Jenkins, Jira, WSL2, Ubuntu, C#/.NET, GUI Test, Git/Bitbucket, YAML*
- *Test automation software development and scripting for bench measurements, data analysis and visualisation*
- *Python in LTSPICE simulation. (e.g. this CV), Markdown and XML*
- *Receiver, transmitter and PA chains, Synthesizers and DDS*
- *Office Excel and Word automation (.NET interop), Python DOCX, Assembly with YAML and Jinja2 templates*
- *Some non-agile, light software development with toolchain, build tools and Jenkins*

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 -

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, June 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 Engineer-Digital, Intel Mobile Communications GmbH, February 2011 – January 2014 [ERL]
- *Intel XMM series XGOLD 2-4G modem reference designs verification*

Senior Baseband Engineer-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]

- *Design and implementation of board-level power and distribution on early access FPGA based boards for 3G+ and 4G protocol stack development*

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

- *3G Mobile platforms designs verification. Validation test documentation and templates*