Theo Hatzis

Klopstockstr. 18, 90491, Nürnberg +49 (0)157 3088 9220 theohatzis@gmail.com

- 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
 - o Temperature characterisation
 - o PMIC and DCDC Verification
 - o Components verification for DCDC power and PMIC devices
 - o 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
 - o Remedial and maintenance design. Issues resolution
 - o Medical and Scientific Equipment design
 - o Environmental performance. Approvals and Safety standards of IT and Medical Equipment
 - Sensors conditioning and interfaces
 - Automotive sensors
- Automation Measurementation
 - o 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.
 - o 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*

 $Senior\ Baseband\ Engineer-Digital,\ Infine on\ Comneon\ GmbH,\ August\ 2010-February\ 2011\ \ [ERL]$

- 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