**Theo Hatzis, MSc**

+49 1573 0889220▫theohatzis@gmail.com▫contract, 100% entirely on-site possible

USt-IdNr: DE259921718 ▫Languages: English and Greek. Available contracts starting March 2023

Engineer looking for upcoming projects in hardware design and testing or post-silicon semiconductor verification testing and validation has experience with mobile platform design verification, post-silicon component verification, silicon DCDC validation, and schematic hardware design capture work gained over design career.

* + Engineering experience includes electronics design and development on medical devices and diagnostic equipment, scientific instruments, highway informatics, and wireless handheld terminals. Hardware verification on 3G/4G modems; Validation and Verification on DCDC converters and PMICs; and IBJT and SiC gate drivers
  + My interests include test-related work on sensor-based systems, sensor conditioning and interfaces, component verification of power devices (DCDC/PMICs, MOSFETs, IBJTs, SiC, GaN, and gate drivers), ADC and RF blocks, and Power and Battery. Spice simulation. Automated testing with MATLAB, Python, Teststand, and LabVIEW. Analysis of test data and visualization with libraries, including Pandas, Numpy, Matplotlib, Plotly, and Spotfire.
  + Industry sectors where I have worked during my career include semiconductor testing, electronics design for 3G/4G hardware, medical devices and medical diagnostics, industrial materials analysis (oils, fats, chocolate, and cements), traffic data and highway informatics subsystems, and electronics hardware design engineering with OrCAD, Mentor Graphics, and Protel CAD schematic capture tools.
  + I was recently a member of a consortium formed by a friend's project company to compete for EU Horizon project funding, assisting in writing technical proposals for a project involving lithium-battery formation processing improvements (energy use, safety, and green) through simulation, cell testing and HiL (digital twin) for BEV and energy storage applications. Other work involved helping with the proposals, including reviewing GaN and SiC drivers and DCDC conversion technology applications in energy storage, traction-power, inverters and charging.
  + In a purely advisory capacity, I ran a literature survey ahead of a students' machine-learning project advocating using TensorFlow with the Keras library in deep learning modelling and training using available battery datasets.

**Experience Areas**

**Semiconductors**

* + Component verification of IBJT and SiC high-voltage gate drivers
  + Validation of DCDC, Buck-Boost, Charge Pumps, PMIC Chipsets, and Modems PMU
  + Creation of test cases and scripting
  + Correlations with design simulation, ATE and bench
  + Datasheets and PRQ Verification
  + Creation of automation of test cases with MATLAB, Python/PyVISA/Pandas, Teststand, LabVIEW and C#/VISA
  + Use of in-house test-automation frameworks and APIs, including bare scripting for automation and visualisation
  + Issues, investigations and FMEDA, including alignment with the PRQs and datasheets
  + Competitive analysis and side-by-side work
  + Dynamic measurements on DCDC, Boosts/Buck-boosts and static measurements on custom silicon
  + ADC measurements (INL & DNL) on delta-sigma

**Hardware Design and Verification**

* + Architecture and Concept design and design captures
  + Component technology selection
  + Design of 8/16/32 embedded microprocessor applications, analogue, digital, ADCs, DACs and interfaces
  + JTAG, Lauterbach Power Trace32, I2C Analyser, Logic Analyser, Clocks Jitter, SIM test, USB test
  + Multiphase, master-slave DCDC FPGA core supply design for Stratix III FPGA and Power routing
  + Schematic design capture with Mentor Graphics (Expedition), Protel SE (or Altium) and OrCAD
  + Design simulation with LTSPICE and SIMetrix

**Equipment, Tools, and Software**

* + Python libraries, Pandas, Numpy, Plotly, MATPLOTLIB, YAML, PyVISA, Ninja2 and CV2
  + Visual Studio, VSC, PyCharm, Teststand, LabVIEW, GIT, Matlab, C# and Teststand
  + Mentor Graphics (Expedition), Protel SE (or Altium) and with OrCAD windows and DOS
  + Bench (with VISA mainly) includes 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 the JTAG debugger
  + Spotfire for Windows
  + JAMA, Jira with Kanban
  + MSOffice automation (C#/.NET), WinForms, PyQT
  + LTSPICE and SIMetrix SPICE

**Training**

Courses in RF Circuit and System Design, Teststand, LabVIEW, EMI, ESD, Spectrum Analyzer, Allegro/Cadence, and TIBCO Spotfire. School MSc (distinction), BSc (Hons) and HNC(BTEC). Roads Signing and Guarding and Highways Safety courses.

**Projects**

*Contractor customer mixed-signal*, Dialog Semiconductor GmbH, (Germering), August 2022 – January 2023

* + Static measurements on boost DCDC converters with PXI and Python test setups and test reports

*Component Verification Engineer*, Infineon Technologies AG, PS ATV, (Am Campeon) October 2021 – June 2022

* + Component verification on high-voltage IBJT/SiC gate drivers, Test reports, and verification reviews.

*Test and Verification Engineer for Radar Applications*, Infineon Technologies AG, (Am Campeon) October 20 – March 21

* + Software development, 60GHz Radar Sensors SDK and GUI tests

*Validation Expert*, Texas Instruments GmbH, (Freising), (Germering), July 2018 – June 2020

* + Device characterization and Bench validation of DCDC converters

*Application Engineer*, Dialog Semiconductor GmbH, (Germering), October 2017 – April 2018

* + Mixed-signal PMIC Chipset DCDC Buck evaluation and documentation

*Validation Engineer*, TI Deutschland GmbH, (Freising), August 2014 – September 2017

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

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

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

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

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

*Hardware Consultant*, ST Ericsson AT (Ericsson GmbH), Nürnberg, January 2006 – December 2009

* + Concept design and power distribution implementation on early access 3GPP protocol FPGA-based boards intended for 3G+ and 4G protocol stack development and involved in power object design on an early LTE demonstrator phone previewed at the 3GSM conference.

*Baseband Engineer*, Texas Instruments A/S (Aalborg), October 2004 – December 2005

* + 3G Mobile platforms designs verification. Validation test documentation.

**Employment Career**

*Baseband Engineer*, Sendo (UK) Ltd., Birmingham, June 2003 – July 2004

*Senior Electronics Engineer*, Psion Teklogix (was Psion Enterprise Computers), Abingdon, May 2000 – February 2003

*Senior Electronics Engineer*, Resonance Instruments Ltd., Witney, February 1999 – December 2000

*Electronics Hardware Engineer*, Golden River (Traffic), Bicester, June 1992 – January 1999

*Electronics Engineer (contract)*, Oakfield Scientific Instruments, Eynsham, November 1991 – May 1992

*Electronics (and Software) Design Engineer*, ISYS Medical, (was IMED UK), Abingdon, December 1987 – November 1991

*Development Engineer*, Oxford Analytical Instruments Ltd., Abingdon, May 1985 – December 1987

*Development Engineer*, Beta Instruments Co. Ltd., High-Wycombe, March 1985 – May 1985

*Senior Electronics Engineer*, Innotron Diagnostics (UK) Ltd., Oxford, July 1984 – January 1985

*Career break,* London, November 1983 – June 1984

*Solar Systems Technologist,* Venture Technology Ltd., (was BEREC), Abingdon, May 1981-November 1983

*Project Chemist/Electronics*, BEREC Advanced Projects Group, November 1980 – May 1981

*(See also my profile section on my Linked In)*

**Career areas**

* + Selection of component technologies
  + Designing analog and digital circuits, Mentor Expedition, Orcad, Protel (Altium)
  + Spice circuit simulation and modeling
  + Concept design and schematic capture for architecture and electronics
  + Wireless internet (WiFi) and Bluetooth (BT)
  + Architecture and application processors for ARM
  + Participation in MIPI's inaugural and second meetings
  + Platform architectures for smartphones
  + Design of ruggedized tablets and industrial wireless terminals
  + Power supply and power distribution design for FPGA boards
  + Circuit design for product display and touchscreen interfaces
  + SIC and IBJT gate driver gray box verification
  + 19-inch racks for highway communications infrastructure using RS485 copper and modems V26/V29
  + Design of circuits for batteries and chargers for portable measurement and data acquisition devices
  + Automation test cases and scripts in Python and Matlab
  + Design verification for wireless connectivity and interfaces including BT, Wi-Fi, 2G, 3G, and 4G interfaces
  + Nuclear magnetic resonance (NMR) gradient drives
  + Informatics systems for highway management
  + Monitoring equipment for roadside traffic pollution and surveys
  + Weigh-in-Motion (WIM) systems with capacitive and piezoelectric sensors
  + Microprocessor-based vehicle inductive loop detection systems for traffic surveys
  + Monitoring of traffic using magnetometer arrays and industrial PCs, equipment, and interfaces
  + Interfacing and RF measurements of industrial tablets
  + Scintillation camera and data acquisition system for medical diagnostics
  + Pin fault assessments for FMEDA
  + Design of PC Card interfaces and data acquisition systems
  + Measurements and interfaces for photomultipliers
  + Design of medical infusion pumps
  + Interfacing with ADCs and DACs
  + ADC INL and DNL verification measurements
  + Design of microprocessor-based products based on 8/16/32 microprocessors
  + Design of bench-top X-ray Fluorescence (XRF) equipment
  + Instruments used for immunoassay diagnostics
  + Photovoltaic (PV) technology demonstrators
  + Verification and validation of post-silicon chips
  + Modules and functional testing of boards
  + Data visualization using plotly and matplotlib
  + Power supplies at the board level, DCDC (bucks, boost, pumps)
  + Tibco Spotfire visualisation
  + XRF detectors with multi-channel scaling
  + Characterization of chalcogenide semiconductors on the optical bench using lock-in amplifiers
  + Analyses of semiconductor liquid junctions using potentiostatatic measurements, cyclic voltammetry
  + Matlab, C#, Python, pandas, numpy, and Teststand with Python and C# adaptors
  + Antenna matching and tuning
  + Functional testing of semiconductors, line regulation, load regulation, efficiency, and load and line transients
  + Low-power battery management, power management
  + Pre-testing for EMI, EMC, and ESD
  + Interfaces and sensor conditioning
  + Circuit design for digital and analog systems
  + Conformance testing of equipment, TUV, BSI, UL, CE
  + Equpment enviromental performance
  + Emissions, drop and topple protection, and lightning protection