PERSONAL INFORMATION

Giovanni Frattini

Sex Male | Date of birth 16/11/1973 | Nationality Italian

PERSONAL STATEMENT

Senior electronics engineer with 20+ years experience in the semiconductor industry R&D, including leadership roles

WORK EXPERIENCE

October 2020 – ongoing

Design Manager

Analog Devices

- Design
- Project definition and lead
- Problem solving
- Recruiting
- Mentoring
- Training

April 2019 – September 2020

Senior IC Design Engineer

Analog Devices

- Design
- Project definition and lead
- Problem solving
- Mentoring
- Training

February 2018 – March 2019

Senior Technologist

Texas Instruments Italy

- Design
- Project definition and lead
- Strategic advisory
- Problem solving
- Mentoring
- Training

March 2015 – January 2018

R&D Director

Texas Instruments Italy

- Management of R&D organization split across multiple countries
- Project definition and coordination
- Technology strategy championing
- Recruiting
- Mentoring

April 2008 – February 2015

R&D Manager

National Semiconductor (acquired by Texas Instruments Italy in 2011)

- Create and lead R&D team
- Project definition, coordination and technical contribution
- Recruiting
- Mentoring

April 1997 – March 2008

Analog IC Designer, then Team Leader

STMicroelectronics Italy

- Analog IC design
- Project lead
- Team lead
- Mentoring

EDUCATION AND TRAINING

September 1991 – March 1997

Master Degree in Electronics Engineering

110/110 cum laude

University of Pavia, Italy

- Microelectronics

PERSONAL SKILLS

Mother tongue(s): Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
Common European Framework of Reference for Languages

Communication skills

- Technical presentations
- Customer interaction
- Interface with different organizations within the company (Product Groups, Technology Development, Packaging, EDA, Sales, Marketing, Manufacturing)
- Seminars in Universities
- Talks at conferences

Organisational / managerial skills

- Experience in management of engineering teams
- Coordinating design resources, development of scheduling and activity plans and goals
- Recruit, mentor, develop engineers and provide technical training, write technical publications, attend/present at conferences
- Experience in coordinating large projects with distributed teams across multiple organisations and locations (business case, budgeting, planning and time management)
- Specification refinement with system engineers, define system architecture in accordance with application needs. Meet and interface with customers to validate spec definition and cross-pollinate with product definition team to fill projects backlog
- Design reviews, documentation and support for integration of IPs into products
- Defining team strategy and roadmap, align team member's objectives with general goals
- Project risk assessment, and risk mitigations methods
- Lead development with external suppliers, partners, Universities and research organizations

Job-related skills

- Analog IC design
- BCD up to 120V, CMOS processes, device physics for power management and mixed signal applications
- Design of power converters building blocks (gate drivers, level shifters, control loop and compensation networks, protections, oscillators, PWM generation, ESD…)
- Mixed signal design (operational amplifiers, comparators, voltage and current references, charge pumps, motor drivers, high voltage drivers, sigma-delta modulators, switched-capacitors and switched-current circuits, digital to analog converters, analog to digital converters, digital calibration of ADCs, PLLs, low power low noise readout channels, chopper amplifiers, isolated communication channels)
- Direct experience in the design and mass production release of high performance power management ICs
- Drive layout design and optimisation
- Area estimate and planning of IC design activities
- Strong understanding of linear and switching regulator topologies such as LDOs, Buck, Boost, Buck-Boost, Inverting, 4th order topologies, hybrid capacitive/inductive, multiphase/multilevel
- Unconventional high frequency topologies (adapting RF power stages like Class-E/Class-F, resonant, soft switching ZVT/ZCT), up to 100MHz switching frequency
- Control architectures such as Peak Current Mode, Valley Current Mode, Voltage Mode, Hysteretic, COT, etc.
- Knowledge of electronic noise, EMI, susceptibility, and mitigation techniques

Driving licence B

ADDITIONAL INFORMATION

Publications

- Baschirotto, A.; Boella, G.; Castello, R.; Frattini, G.; Pessina, G. & Rancoita, P. G. (1998), '3~ns resolution CMOS low-power time-to-voltage converter', Electronics Letters 34(7), 614--615.
- Baschirotto, A.; Boella, G.; Castello, R.; Frattini, G.; Pessina, G. & Rancoita, P. G. (1998), Fully integrated readout channel with amplitude and time measurement for AMS experiment on ISSA, in 'Proc. IEEE Int. Symp. Circuits and Systems ISCAS '98', pp. 220--223 vol.2.
- Fontanella, L.; Frattini, G.; Ricotti, G. & Pedrazzini, G. (1999), Single chip, self supplied, voltage and charge mode double 80V piezoelectric actuator driver, in 'Proc. 25th European Solid-State Circuits Conf', pp. 94--97.
- Bardelli, R.; Fontanella, L.; Forte, F.; Frattini, G.; Martinelli, G.; Ricotti, G. & Rossi, M. (2000), Fully integrated motor driver controller for hard disk drive using digital approach, in 'Proc. 26th European Solid-State Circuits Conf', pp. 101--104.
- Baschirotto, A. & Frattini, G. (2000), A 3.3~V CMOS line-driver for serial bus, in 'Proc. (IEEE Cat No.00CH36353) 2000 IEEE Int Symp. Circuits and Systems. Emerging Technologies for the 21st Century', pp. 457--460 vol.4.
- Dallago, E.; Miatton, D.; Venchi, G.; Frattini, G. & Ricotti, G. (2007), Self-Supplied Integrable Active High-Efficiency AC-DC Converter for Piezoelectric Energy Scavenging Systems, in 'Proc. IEEE Int. Symp. Circuits and Systems', pp. 1633--1636.
- Dallago, E.; Frattini, G.; Miatton, D.; Ricotti, G. & Venchi, G. (2007), Integrable High-Efficiency AC-DC Converter for Piezoelectric Energy Scavenging System, in 'Proc. IEEE Int. Conf. Portable Information Devices', pp. 1--5.

- Dallago, E.; Miatton, D.; Venchi, G.; Bottarel, V.; Frattini, G.; Ricotti, G. & Schipani, M. (2008), Electronic interface for Piezoelectric Energy Scavenging System, in 'Proc. ESSCIRC 2008 - 34th European Solid-State Circuits Conf', pp. 402--405.
- Dallago, E.; Miatton, D.; Venchi, G.; Bottarel, V.; Frattini, G.; Ricotti, G. & Schipani, M. (2008), Active autonomous AC-DC converter for Piezoelectric Energy Scavenging Systems, in 'Proc. IEEE Custom Integrated Circuits Conf', pp. 555--558.
- Dallago, E.; Miatton, D.; Venchi, G.; Bottarel, V.; Frattini, G.; Ricotti, G. & Schipani, M. (2008), Active self supplied AC-DC converter for piezoelectric energy scavenging systems with supply independent bias, in 'Proc. IEEE Int. Symp. Circuits and Systems', pp. 1448--1451.
- Dallago, E.; Miatton, D.; Venchi, G.; Bottarel, V.; Frattini, G.; Ricotti, G. & Schipani, M. (2008), Comparison of Two Autonomous AC-DC Converters for Piezoelectric Energy Scavenging Systems, in Christian Piguet; Ricardo Reis & Dimitrios Soudris, ed., 'VLSI-SoC: Design Methodologies for SoC and SiP - 16th IFIP WG 10.5/IEEE International Conference on Very Large Scale Integration, VLSI-SoC 2008, Rhodes Island, Greece, October 13-15, 2008, Revised Selected Papers', Springer, , pp. 61--80.
- Frattini, G.; Petrone, G.; Spagnuolo, G. & Vitelli, M. (2010), AC module design employing low capacitance values, in 'Proc. IEEE Int. Symp. Industrial Electronics', pp. 3444--3449.
- Spiazzi, G.; Mattavelli, P.; Gazoli, J. R.; Magalhaes, R. & Frattini, G. (2010), Improved integrated boost-flyback high step-up converter, in 'Proc. IEEE Int. Conf. Industrial Technology', pp. 1169--1174.
- Pareschi, F.; Setti, G.; Rovattit, R. & Frattini, G. (2011), A spread spectrum clock generator based on a short-term optimized chaotic map, in 'Proc. ESSCIRC (ESSCIRC) 2011', pp. 507--510.
- Mangia, M.; Pareschi, F.; Rovatti, R.; Setti, G. & Frattini, G. (2012), Coping with saturating projection stages in RMPI-based Compressive Sensing, in 'Proc. IEEE Int. Symp. Circuits and Systems', pp. 2805--2808.
- Calabrese, G.; Granato, M.; Frattini, G. & Capineri, L. (2014), Integrated high step-down multiphase buck converter with high power density, in 'Proc. 16th European Conf. Power Electronics and Applications', pp. 1--10.
- Guven, O.; Eftekhar, A.; Hoshyar, R.; Frattini, G.; Kindt, W. & Constandinou, T. G. (2014), Realtime ECG baseline removal: An isoelectric point estimation approach, in 'Proc. IEEE Biomedical Circuits and Systems Conf (BioCAS)', pp. 29--32.
- Pareschi, F.; Setti, G.; Rovatti, R. & Frattini, G. (2014), 'Short-term Optimized Spread Spectrum Clock Generator for EMI Reduction in Switching DC/DC Converters', IEEE Transactions on Circuits and Systems I: Regular Papers 61(10), 3044--3053.
- Pareschi, F.; Setti, G.; Rovatti, R. & Frattini, G. (2014), 'Practical Optimization of EMI Reduction in Spread Spectrum Clock Generators With Application to Switching DC/DC Converters', IEEE Transactions on Power Electronics 29(9), 4646--4657.
- Bertoni, N.; Frattini, G.; Massolini, R.; Pareschi, F.; Rovatti, R. & Setti, G. (2015), A new semi-analytic approach for class-E resonant DC-DC converter design, in 'Proc. IEEE Int. Symp. Circuits and Systems (ISCAS)', pp. 2485--2488.
- Bertoni, N.; Frattini, G.; Albertini, P.; Pareschi, F.; Rovatti, R. & Setti, G. (2015), A first implementation of a semi-analytically designed class-E resonant DC-DC converter, in 'Proc. IEEE Int. Symp. Circuits and Systems (ISCAS)', pp. 221--224.
- Calabrese, G.; Granato, M.; Frattini, G. & Capineri, L. (2015), Integrated Gate Drive Architecture for High Step-down Multiphase Buck Converter, in 'Proc. PCIM Europe 2015; Int. Exhibition and Conf. for Power Electronics, Intelligent Motion Renewable Energy and Energy Management', pp. 1--8.
- Bertoni, N.; Frattini, G.; Massolini, R. G.; Pareschi, F.; Rovatti, R. & Setti, G. (2016), 'An Analytical Approach for the Design of Class-E Resonant DC –DC Converters', IEEE Transactions on Power Electronics 31(11), 7701--7713.
- Calabrese, G.; Granato, M.; Frattini, G. & Capineri, L. (2016), 'Integrated high step-down multiphase buck converter with high power density', Microelectronics Journal 56, 97--109.
- Giannelli, P.; Rossi, M.; Capineri, L.; Granato, M.; Frattini, G. & Calabrese, G. (2016), The ZetaBoost: A step-up DC/DC topology derived from the Zeta converter, in 'Proc. 18th European Conf. Power Electronics and Applications (EPE'16 ECCE Europe)', pp. 1--10.
- Pareschi, F.; Albertini, P.; Frattini, G.; Mangia, M.; Rovatti, R. & Setti, G. (2016), 'Hardware-Algorithms Co-Design and Implementation of an Analog-to-Information Converter for Biosignals Based on Compressed Sensing', IEEE Transactions on Biomedical Circuits and Systems 10(1), 149--162.
- Giannelli, P.; Capineri, L.; Calabrese, G.; Frattini, G. & Granato, M. (2017), A reduced output ripple step-up DC-DC converter for automotive LED lighting, in 'Proc. 13th Conf. Ph.D. Research in Microelectronics and Electronics (PRIME)', pp. 329--332.
- Lu, L.; Ahsanuzzaman, S. M.; Prodic, A.; Calabrese, G.; Frattini, G. & Granato, M. (2018), Peak offsetting based CPM controller for multi-level flying capacitor converters, in 'Proc. IEEE Applied Power Electronics Conf. and Exposition (APEC)', pp. 3102--3107.
- Zhang, Y.; Radovic, I.; Ahsanuzzaman, S. M.; Prodic, A.; Calabrese, G.; Frattini, G. & Granato, M.

(2018), Low-frequency ripple-shaping controller for operation of non-inverting buck-boost converters near step-up step-down boundary, in 'Proc. IEEE Applied Power Electronics Conf. and Exposition (APEC)', pp. 292--297.

- Lu, Liangji; Zhang, Yuqing; Ahsanuzzaman, SM; Prodić, Aleksandar; Calabrese, Giacomo; Frattini, Giovanni; Granato, Maurizio; Digital Average Current Programmed Mode Control for Multi-Level Flying Capacitor Converters, 2018 IEEE 19th Workshop on Control and Modeling for Power Electronics (COMPEL)
- Capineri, Lorenzo; Giannelli, Pietro; Calabrese, Giacomo; Granato, Maurizio; Frattini, Giovanni; Design, Realization and Characterization of a Differential Charge Amplifier for Ultrasonic Piezopolymer Transducers 2018 IEEE International Ultrasonics Symposium (IUS)
- Foray, Etienne; Allard, Bruno; Martin, Christian; Frattini, Giovanni; Topologies for high-voltage low-power integrated DC-DC converter, 2019 21st European Conference on Power Electronics and Applications (EPE'19 ECCE Europe)
- Pareschi, Fabio; Bertoni, Nicola; Mangia, Mauro; Massolini, Roberto G; Frattini, Giovanni; Rovatti, Riccardo; Setti, Gianluca; Class-E Isolated DC–DC Converter With High-Rate and Cost-Effective Bidirectional Data Channel; IEEE Transactions on Power Electronics, 35,5, pp.5304-5318, 2019
- Lu, Liangji; Prodić, Aleksandar; Calabrese, Giacomo; Frattini, Giovanni; Granato, Maurizio; Current Programmed Mode Control of Multi-Level Flying Capacitor Converter Near Zero-Ripple Current Region, 2019 IEEE Applied Power Electronics Conference and Exposition (APEC)
- Giannelli, Pietro; Bulletti, Andrea; Granato, Maurizio; Frattini, Giovanni; Calabrese, Giacomo; Capineri, Lorenzo; A Five-Level, 1-MHz, Class-D Ultrasonic Driver for Guided-Wave Transducer Arrays, IEEE transactions on ultrasonics, ferroelectrics, and frequency control, 66, 10, pp. 1616-1624
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Patents

- GABRIELE [IT], ALBASINIGUIDO.; TEMPORITI [IT], MILANIENRICO.; GIULIO [IT], RICOTTI& GIOVANNI [IT], FRATTINI(), Phase-locked loop circuit with switched-capacitor conditioning of the control current.
- KUMAR [US], BARANWALSHAILENDRA.; MAURIZIO [IT], GRANATO& GIOVANNI [IT], FRATTINI(), Isolated High Frequency DC/DC Switching Regulator.
- ANDREA [IT], BASCHIROTTO& GIOVANNI [IT], FRATTINI(), AC-coupled driver with wide output dynamic range.
- LUCA [IT], FONTANELLA.; GIOVANNI [IT], FRATTINI.; GIORGIO [IT], PEDRAZZINI& GIULIO [IT], RICOTTI(), Driver circuit for controlling a piezoelectric actuator in charge mode.
- LUCA [IT], FONTANELLA.; GIOVANNI [IT], FRATTINI& GIULIO [IT], RICOTTI(), Boost regulator with an inverted and non-inverted output.
- LUCA [IT], FONTANELLA.; GIOVANNI [IT], FRATTINI& GIULIO [IT], RICOTTI(), Switching device.
- GIOVANNI [IT], FRATTINI.; G [IT], MASSOLINIROBERT.; MAURIZIO [IT], GRANATO& I [US], ANDERSONDAVID(), RESONANT GATE DRIVERS AND CONVERTERS.
- GIOVANNI [IT], FRATTINI.; G [IT], MASSOLINIROBERTO.; MAURIZIO [IT], GRANATO& I [US], ANDERSONDAVID(), SINGLE-PULSE RESONANT GATE DRIVER FOR DRIVING SWITCHES IN RESONANT ISOLATED CONVERTERS AND OTHER SYSTEMS.
- GIOVANNI [IT], FRATTINI.; G [IT], MASSOLINIROBERTO.; MAURIZIO [IT], GRANATO& I [US], ANDERSONDAVID(), RESONANT ISOLATED CONVERTERS FOR POWER SUPPLY CHARGE BALANCING SYSTEMS AND OTHER SYSTEMS.
- GIOVANNI [IT], FRATTINI.; GIORGIO [IT], SPIAZZI& PAOLO [IT], MATTAVELLI(), High step-up ratio soft-switched flyback converter.
- GIOVANNI, FRATTINI.; REUTZEL, EVAN.; JEFFREY, MORRONI.; DJABBARI, ALI.; GERARD, SOCCI.; GIANPAOLO, LISI.; SUBRAMONIAM, RAJ& KOSHA, MAHMODIEH(), LED MATRIX MANAGER.
- MAURIZIO [IT], GRANATO.; GIOVANNI [IT], FRATTINI.; PIETRO [IT], GIANNELLI.; MICHAEL [DE], LUEDERS& CHRISTIAN [DE], ROTT(), MULTILEVEL BOOST DC TO DC CONVERTER CIRCUIT.
- MAURIZIO [IT], GRANATO.; GIOVANNI [IT], FRATTINI& ROBERTO [IT], MASSOLINI(), Drivers and Methods of Driving Transducers.
- VIJAYLAXMI [US], KHANOLKAR.; ANINDYA [US], PODDAR.; RANDALL [US], WALBERG.; GIOVANNI [IT], FRATTINI& GIAMPIERO [IT], MASSOLINIROBERTO(), Multilayer High Voltage Isolation Barrier in an Integrated Circuit.
- GIAMPIERO [IT], MASSOLINIROBERTO.; MAURIZIO [IT], GRANATO& GIOVANNI [IT], FRATTINI(), REGULATED MULTIPLE OUTPUT ISOLATED DC TO DC CONVERTER.
- GIULIO [IT], RICOTTI.; SANDRO [IT], ROSSI& GIOVANNI [IT], FRATTINI(), Driving circuit for piezoelectric actuators, in particular for a read/write transducer for hard disks.
- CATERINA [IT], RIVA.; BRUNO [IT], MURARI& GIOVANNI [IT], FRATTINI(), INTERACTION

STRUCTURE FOR A STORAGE MEDIUM.

- FILIP [DE], SAVIC.; GIACOMO [DE], CALABRESE& GIOVANNI [IT], FRATTINI(), Switched Converter Control Using Adaptive Load Current Sensing and Feedforward Technique.
- Albertini, Pierluigi; Granato, Maurizio; Calabrese, Giacomo; Massolini, Roberto Giampiero; Mullenix, Joyce Marie; Frattini, Giovanni; Isolated phase shifted DC to DC converter with secondary side regulation and sense coil to reconstruct primary phase
- Granato, Maurizio; Calabrese, Giacomo; Frattini, Giovanni; Isolated dc-dc converter
- Calabrese, Giacomo; Granato, Maurizio; Frattini, Giovanni; Current limiting I/O interface and isolated load switch driver IC
- Granato, Maurizio; Frattini, Giovanni; Giannelli, Pietro; Lueders, Michael; Rott, Christian; Multilevel boost DC to DC converter circuit
- Granato, Maurizio; Frattini, Giovanni; Massolini, Roberto; Transducer driver attenuating input current frequency at maximum mechanical output
-