



Fedotov Dmitry

Male, 50 years, born on 1 August 1972

Citizenship: Russia, now work in Serbia, willing to relocate.

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Principle Research Engineer

More 25 years in field of research and development of electronic devices including great experience (=20years) of development of radar and wireless communication system. For recent 10 years, I design many radars and sensors for SAMSUNG, TI, INFINEON related to security and safety systems for in car/ home and hospitals apps. For example, our last products for mass production in list, below:

2022: CPD 60Gz MIMO sensor for Continental/Infineon in car apps.(Germany)

2021: SPARTAN Front End Radar at 79Gz MIMO for Xilinx/TI for car apps.(USA)

2020: R I O T – 24GHz Radar sensor module for Google in embedded remote sensing apps.(Germany)

2019: Thunder 360 – Vital sign sensor for IoT apps and silver house.(Korea)

2018: Fall detection sensor for hospitals (Samsung Hospital, Korea)

2017: Occupancy sensor for Smart Light take award FLY'17(<https://www.youtube.com/watch?v=dJcLXkzTJ3E>)

2016: UWB sensor for smart camera . Link here (<https://www.youtube.com/watch?v=jUHFkpswLZ8>)

2015: Licensed HW design for Optex ,Japan (<http://www.optexamerica.com/security-products/urx-p01wh>)

Work experience at last 10 years

November 2020 —till now

NOVEL IC Co.Ltd Serbia, <http://www.novelic.com/>

2 years

System Architect

Development custom devices and system based on RF-IC from NOVEL and on other RF-chips from partners (TI, Analog and Infineon) for customer apps. Concept and system design, HW design related to antenna or beam-forming issues in mm-Wave band (122-60GHz), estimate MIMO performance, circuits simulation and schematic design in CAD, support/edit PCB layout and stack. Conduct projects activities related to R&D, support & communication with production team (TI, Infineon) and marketing.

November 2017 —October 2020

UMAIN Co.LtdSouth Korea, www.umain.co.kr/en/en-homepage/

3 years

Principle Research Engineer

Research and development UWB radar sensor devices, concept design-based CMOS RF IC, microwave and RF design including antennas arrays; develop algorithms of primary signal processing for embedded MCU/DSP and feature extractions and fusion design. Conduct projects activities related to R&D, support & communication with production team and marketing. Work focused on development new IOT products based on UWB radar technology for security, safety and vital signs monitoring.

February 2004

November 2017

13 years 10
months

[Samsung Research Center](#)

Russia,

www.research.samsung.ru

Project leader

Development: Define IP, transfer customer requirement to technical specifications, system architecture design (strategy & concept), hardware design and microwave circuit simulation including antenna design, firmware development and algorithms for signal processing of radars and security sensors, provide software design of user apps. Manage: generate plan and budget, define task of development, manpower control and manage technical project, plans, advise outsourcing activities.

Key skills

MS Project /Open Project - Experience more 10 years including development **-VBA** scripts for customizing control. Used for control of project R&D flow tasks

ASM/C/C++/C#/JS - Often used during last years for development firmware for sensor and short distance radars based on MCU/DSP – primary signal processing and secondary processing related to features extractions and task related to recognize states or activities by raw radar signals. Of course, deep experience **IAR,CC,Keil** platforms. **C# /JS**- for develop user apps and tools for testing hardware or/and scope data stream from radar. Often use JS in develop embedded form GUI for IoT devices at HTTP protocol, only for simple apps where not need deep knowledge in Java.

CST/SONNET/HFSS - Primary design tools for RF and Microwave hardware design and EM simulation process, experience more 10 years and design up to 122GHz. For FMCW antenna and waveguides design used CST , at low MW band up to 30GHz use SONNET a specially in the case of planar structure -PCB antenna, HFSS was used many years ago for design SMT UWB antennas, most experience in CST (approximate 200 design files per year).

MWO/ADS/ALTIUM DESIGNER - MWO/ADS used for HW simulation and design RF like LNA/MIXER or other RF components. And Altium as primary design tool for PCB projects and prepare outputs for mass production.

TINA/EW/NI-SDS/SPICE – For low frequency and Hi-voltage circuit HW simulation like active and passive filters or signal conditioner at analog circuits, interface A/D or D/D, drivers and boosters.

WEKA/PYTHON/MATLAB – Rare in use, today, most experience related to education process and science work. Sometimes used for preliminary estimation of algorithms need, but not as primary design platform for algorithms. Reason is a lot time for transfer source code to firmware, embedded **C/C++** converter of MATLAB has poor performance that so spend resources of MCU much. Experience in **JS** allow to use WEKA for quickly statistic estimations and feature extraction process during algorithm development. Some times use PYTHON as scripts for interconnection/transform data stream, a specially in primary signal processing.

Higher education (PhD)

- 2010 **Moscow State Institute of Radio Engineering, Electronics and Automation,**
PhD, Radar, and telecommunication system
(Signal processing for UWB radar in security application)
- 1995 **Moscow State Aviation Institute**
MS, Engineer of electronic system.
RF Engineer of electronic system # 95/41-126

Professional certificates

- 2011 **“Effective business communication”, KPG.**
- 2009 **“Six sigma: Green Belt level” Develop project methodology,**
Certificate: #PASS 08000080-SEC
- 2006 **“Altium Designer: Design HW circuits in the framework”, Certificate**
#06-15- 266
- 2005 **Microwave Office: Design microwave circuits”, Certificate #05-09-205**

Languages

- Russian — **Native**
- English — **B2** — Upper Intermediate

Patents and publications

8 patents and 27 publications in details, below:

1. US Patent 2005/0270221 A1 “ULTRA WIDE BAND TRANCEIVER”
2. US 2008/0174471 A1,US7545314 B2 “UWB SIGNAL TRANSMITTER FOR RADARS AND SENSORS”
3. RU 2006102581 “ULTRA-WIDEBAND FRONT END FOR SHORT RANGE RADAR APPLICATION”
4. RU 2006102582 “SIGNAL CONDITIONING SUBSYSTEM FOR UWB SYSTEM”
5. RU 2007101081 “UWB TRANSMITTER FOR RADARS AND SENSORS”
6. RU 2008132978 “UWB PULSE CABLED INTRUSION DETECTION SYSTEM AND METHOD”
7. RU 2009101103 “METHOD AND DEVICE FOR TIMING CONTROL IN ULTRA WIDE BAND SYSTEM”
8. RU2010100796 "METHOD FOR TRANSMITTING AND RECEIVING OF UWB SIGNALS INT SECURITY SENSORS"

Publications

1. R.E. Integrated radio electronic systems of a new generation, Creation of a ultra broad band video pulse radar as the constituents of the integrated radio electronic system of airport. The Moscow State air institute (Engineering university), report on RESEARCH ENGINEERING, 1998.
2. R.E. The Integrated radio electronic systems of a new generation (cipher "Federating"), Mining of principles of constructing and creation of a ultra broadband radar, as the constituents of the integrated airfield-view electronic system at airport. The Moscow State air institute (Engineering university), Report on RESEARCH ENGINEERING, 1999.
3. R.E. The Integrated radio electronic systems of a new generation, Mining of principles of constructing and creation of a UWB radar, as the constituents of the integrated airfield-view electronic system at airport. The Moscow State air institute (Engineering university), Report on RESEARCH ENGINEERING, 2000.
4. R.E. The Integrated radio electronic systems of a new generation, Mining of principles of constructing and creation of a UWB radar, as the constituents of the integrated airfield-view electronic system at airport. The Moscow State air institute (Engineering university), Report on RESEARCH ENGINEERING, 2001.
5. Fedotov.D., Immoreev I., Optimal treating of radar cues with unknowns of arguments. Radio engineering, №10, 1998.
6. Fedotov D., Ziganshin E., Immoreev I., Digital treating of ultra broad band radar cues. The second International Conference « a Digital signal processing and its applying » (DSPA '99) Moscow, 1999
7. Fedotov D. Low-price radar system for the control of runway occupancy. International Symposium on Precision Approach and Automatic Landing, ISPA 2000, Munich, Germany, 18-20 July, 2000.
8. R.E. A Justification of alternatives of constructing of an experimental sample of the UWB airfield-view radar for ATC and check of territories. REVIEW OF RESEARCH ENGINEERING. SRI "Boom",. Tula, 2000.
9. Idealized computational methods of radars operating ultra broad band cues. The Russian-Chinese grant of the Russian Fund of basic Researches № 99-02-39048-ГФЕИ а. Report on the design stage maiden. 2000.
10. Idealized computational methods of radars operating UWB cues. The Russian-Chinese grant of the Russian Fund of basic Researches № 99-02-39048-ГФЕИ а. The total report on the design. 2001.
11. Optimal treating of radar cues with unknowns of arguments. The grant of the Russian Fund of basic Researches № 01-02-17409-a. Report on the design stage maiden. 2001.
12. Fedotov.D., Immoreev I., Discovery of ultra broad band cues, reflected from the composite purposes. The report on 8-m a Seminar of section « Information know-how in location system » of Scientific Advice(council) « New information know-how » Separations of information science, Computer facilities and automation of WOUNDS, MBGTU, Moscow, February 01 2002.
13. Fedotov.D., Immoreev I., Applying inter period correlation treating for discovery of radar cues with the obscure shape. Radio engineering, №4, 2002.
14. Fedotov.D., Immoreev I., Ultra wideband radar system: Advantages and Disadvantages, UWBST'02, Baltimore, USA, 2002.
15. Fedotov.D., Immoreev I., Detection of UWB signals reflected from complex targets, UWBST'02, Baltimore, USA, 2002.
16. Fedotov D., Ziganshin E., Immoreev I., Processing UWB signals. IEEE International Symposium "UWBUSIS'02", Ukraine, 2002
17. Fedotov D, Ziganshin E., Immoreev I., Chernyk.V Problems of detection UWB pulses, CRCA2003, Murom, Russia, 2003.
18. Fedotov.D., Zamuruev.S, Sudakov.A, The signals used in the UWB systems, Science technology, #7, 2005.
19. Fedotov.D., Zamuruev.S, Sudakov.A, Short pulse oscillator for UWB antenna array application, Science technology, #10, 2005.
20. Fedotov.D., Mun W., Technical and Algorithmic Problems and Approaches to UWB Indoor Security Sensor Realization, SAMSUNG Tech. Conference, Seoul, Korea, 2005.
21. Fedotov.D., Krylov.K., New compact microstrip UWB antenna, CRCA2006, Murom, Russia, 2006.
22. Fedotov.D., Sudakov.A, Power management of UWB systems, CRCA2006, Murom, Russia, 2006.
23. Fedotov.D. On the use of UWB pulses in monostatic microwave security detectors., Modern security technologies and systems , Penza, Russia, 2010.
24. Fedotov.D., Sudakov.A, Simulation of UWB signals in transmitter in the AWR Design Environment, ISC "Radar systems of small and very short ranges", Moscow, Russia, 2011.
25. Fedotov.D. SMT UWB antenna for mass production, IIEEE Radar and systems 2013, Moscow, Russia, 2013.
26. Fedotov.D., Nesterov.V, Implementation of sub-nanosecond pulses to control UWB RF-transceivers using FPGA without oscillator, II International Conference "Engineering & Telecommunication 2015", Moscow, Russia, 2015.
27. Fedotov.D., Kuk.H, Nesterov.V, "Novel concept of RF hardware for sensing technology", IIEEE RWW 2017, Denver, USA.