Max K.
Expert FPGA / Embedded Developer.

SUMMARY

- Seasoned FPGA and embedded systems engineer with 10+ years of experience, and a track record of architecting and implementing complex hardware and software solutions; - Expert knowledge in VHDL, FPGA, CPLD, MCU, and SoC development, with proficiency in tools like Intel(Altera), Xilinx, and Modelsim; - Strong expertise in cryptographic acceleration, RADAR systems, digital signal processing, and PCB design; - Experience in leading a development team for a cryptography acceleration project and implementing advanced algorithms in various domains; - Robust background in electronic device development and embedded programming in C and Python.

TECHNICAL SKILLS

Main Technical Skills	FPGA, VHDL, C/C++/C#, Python, Embedded Systems
Programming Languages	Python
C++ Libraries and Tools	C/C++/C#
PHP Frameworks	CodeIgniter 3+
Security	RSA
Databases & Management Systems / ORM	MS SQL Server Management Studio
UI Frameworks, Libraries, and Browsers	Ant Design, HTML/CSS Preprocessors
Cloud Platforms, Services & Computing	DigitalOcean, Fastly
Industry Domain Experience	DSP
UI/UX/Wireframing	3D Modelling
QA, Test Automation, Security	AES, Encryption
Third Party Tools / IDEs / SDK / Services	Altium, Labview, MathCAD, MatLab, Vivado
Platforms	ASIC, FPGA, MCU, STM32
Hardware	CAD
Methodologies, Paradigms and Patterns	Clean Architecture

Blockchain and Decentralized Software	Cryptography
Mail / Network Protocols / Data transfer	USB
Other Technical Skills	CKDF, CMOS Sensors, Convolutional Filtering, Digital Beam Forming, Docker Machine, ECDSA, ECHD, FFT, MAC Algorithm, PCB Design, Phased Scanning, Quartus, RIPEMD, SHA256, SHA-3, SHA3, SoC FPGA, USB 3.0, XILINX

WORK EXPERIENCE

FPGA Designer, NDA

Duration: Nov 2020 - Present

Summary: Cryptography Acceleration Project. Tasked with developing FPGA-based systems for cryptography acceleration, including implementing various crypto algorithms.

Responsibilities: Solution architect and FPGA developer, responsible for implementing crypto algorithms for encryption and ECHD.

Technologies: FPGA, Cryptography, Encryption, MAC Algorithm, ECHD.

FPGA Designer, NDA

Duration: Dec 2019 - Nov 2020

Summary: Video Image Device, and RADAR Solutions. Responsible for the architecture and development of FPGA-based systems for video image processing and RADAR solutions.

Responsibilities:

- Work as solutions architect and FPGA developer in video image device building
- projects;
- Work as a systems engineer and FPGA developer in RADAR solutions;
- Making RADARs with AESA, implemented a lot of DPS algorithms such as Doppler
- processing, FFT, convolutional and matching filtering, Digital Beam Forming, Phased
- scanning etc;
- Making complex systems for optical control devices with hi-res cameras and built-in
- hi, speed processing. Running CMOS sensors with RAW data, making processing like
- filtering, cutting, and gamma correction. Running interfaces like USB 3.0.

Technologies: FPGA, DSP, AESA, FFT, Convolutional Filtering, Digital Beam Forming, Phased Scanning, CMOS Sensors, USB 3.0.

FPGA Designer, Blockchain Project

Duration: Mar 2019 - Oct 2019

Summary: Engaged in Blockchain project focusing on implementing crypto algorithms and creating heterogeneous systems.

Responsibilities:

- Work as an FPGA developer in Blockchain projects including hardware-based security

• solutions;
• Making Python unit tests for testing and controlling FPGA solutions.
• Implementation of different crypto algorithms such as Hashing, Encryption, Key management,
• Digital Signatures (SHA256, SHA3, AES, RSA, ECDSA, CKDF).

Technologies: FPGA, MCU, STM32, ECDSA, SHA-3, RIPEMD, Python.

FPGA designer, Hardware-Based Security Blockchain Project

Duration: Jan 2018 - Feb 2019

Summary: Involved in a Blockchain project developing hardware-based security solutions and implementing various cryptographic algorithms.

Responsibilities:

• Development, leading, and managing of the full cycle devices development;
• Work as FPGA developer and system architect of hardware solutions;
• Development of digital optical devices based on FPGA;
• Video image processing based on FPGA SoC Altera, designing and implementation
• algorithms on Altera's System-on-Crystal;
• Making own video camera from CMOS sensor to display;
• Making motorized pan-tilt module with multispectral vision sensors including laser
• rangefinder, day/night cameras, GPS, accelerometer, autofocus, target detection and
• tracking;
• Making handheld optical (video-image) devices for outdoor applications;
• Implementation of different computer vision algorithms for filtering, scaling, zooming,
• video-based detecting, tracking, and recognition;
• Implementation of test benches with ModelSim. Static and dynamic timing analysis.

Technologies: FPGA, Python, SHA256, SHA3, AES, RSA, ECDSA, CKDF.

FPGA designer, Embedded Developer, Digital Optical Devices Development

Duration: Oct 2013 – Jan 2018

Summary: Led full-cycle development of digital optical devices and video image processing solutions based on FPGA.

Responsibilities: System architect and FPGA developer, managing device development and implementing computer vision algorithms.

Technologies: FPGA SoC Altera, DSP algorithms, Computer Vision, ModelSim, STA

Researcher, Welding Robot Vision System

Duration: Nov 2012 – Oct 2013

Summary: Worked on developing a machine vision and recognition system for a welding robot based on SoC FPGA.

Responsibilities: Development of machine vision and recognition system for welding robot-based

SoC FPGA, programming with VHDL and C for embedded.

Technologies: SoC FPGA, VHDL, C.

Head of the Laboratory of Optoelectronics, Automatic Systems in Mining Industry

Duration: Apr 2010 – Oct 2012

Summary: Konotop Institute of Sumy State University.

Responsibilities: Programming in C for embedded, designing, and implementation automatical

systems in the mining industry, designing PCBs for systems with high reliability

constraints, teaching activities.

Technologies: C, PCB Design.

Technician, Ultrasonic NDT Devices

Duration: Sep 2007 – Feb 2008

Summary: Designed and implemented ultrasonic devices for non-destructive testing, and programming for various systems.

Responsibilities: designing and implementation of ultrasonic devices for NDT, programming in

C for embedded systems-based controllers and programming for PC in LabView.

Technologies: Embedded Systems, C, LabView.

EDUCATION

National Technical University of Ukraine “Kyiv Polytechnic University”

Graduated in 2010, Device-making department, the chair of "Devices and systems of non-destructive control," a specialist