DUC MANH NGUYEN PH.D.

Yongin-si/Korea | +82-10-6617-1811
nguyenmanhduc18@gmail.com
github | linkedin

HIGHLIGHT SKILLS

- Familiar with ASIC digital, Embedded SW, FPGA design, DSP and communication system research.
- Experiences in system on chip design for touchscreen controller based on ARM Cortex-M4 processor, embedded system development with ARM architecture.
- Proficient with hardware description language coding, RTL pre/post simulation, testbench simulation, UVM verification, Synthesis, Static timing analysis.
- Demonstrated success in prototyping using high-level program languages and FPGA emulation, FPGA porting.
- Good understanding of mixed signal IC design flow and methodology.
- I am a fast learner, curious about new technology. I dream a lot and always work hard to make it come true.
- My current interests are the system on chip design for new sensor technology, AI/ML and IoT applications.

EDUCATION

UNIVERSITY OF ULSAN-UOU
02/2015-02/2020 / Korea

PH.D. IN ELECTRICAL ENGINEERING

• Working as assistant researcher at Coding and information theory lab, University of Ulsan on the topic of "Quantum error correction codes and quantum information processing algorithms for next-generation information system."

HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY-HUST
09/2007-06/2012 / Vietnam

B.S IN ELECTRONICS AND TELECOMMUNICATION

• Thesis: Verilog HDL implementation of Direct Digital Frequency Synthesizer with CORDIC algorithm.

EXPERIENCE

G2TOUCH
03/2020-now / Korea

RESEARCHER AND ENGINEER

• Researcher in System on chip (SoC) team, IC design center.

• IP cores, DSP block design for touchscreen controller IC to support active pen (MPP and USI).

• Overall architecture design for LiDAR on chip (Light for detection and ranging).

ADVANCED NETWORK SYSTEM VIETNAM (ANSV)
6/2014-2/2015 / Vietnam

NETWORK SYSTEM ENGINEER

• Network engineer, Network system integration center.

• System integration for the telecommunication system.

SAMSUNG VIETNAM FOR MOBILE RND CENTER (SVMC)
9/2012-5/2014 / Vietnam

SW ENGINEER, COMMERCIAL DIVISION.

• SW binary build setups, customer settings for Samsung smart-phones.

PANASONIC RND CENTER
1/2012-3/2012 / Vietnam

INTERNSHIP STUDENT

• 3D-Graphic Software development.

SKILLS

PROGRAMMING	Verilog-HDL | System verilog | Shell script | TCL | ARM assembly | MATLAB | C/C++ | Python
IC DEVELOPMENT TOOLS	***RTL:*** NC-Verilog | Modelsim | Spyglass lint ***Synthesis:*** Design complier ***STA:*** PrimeTime
FPGA	Quartus Prime (Altera) | Xilinx ISE (Vivado) | DSP Builder
EMBEDDED SYSTEM	ARM Cortex-M core | Andes D10 core | STM32F401 | X-NUCLEO-53L1A1 | Arduino-UNO
OS	Ubuntu LTS | UNIX Centos | Linux Red hat | RTOS | ROS
LANGUAGES	***Native:*** Vietnamese ***Fluent:*** English ***Intermediate:*** Korean

Projects in G2touch

LiDAR/ToF sensor for industrial application and self-driving car (on-going)

- Joint on LiDAR (Light for detection and ranging) on chip design solution.
- Transmitter block design based on pulsed VCSEL laser with DSSS code.
- Receiver block design based on matched filter with SPAD/SiPM light sensor.
- IP core ToF (time of flight) processor design.

Touchscreen controller IC for active pen USI1.0 support

- Joint on System on chip architecture design based on ARM-Cortex M4 core.
- Transmitter block - USSS up-link design.
- Decoder block - DBPSK demodulator down-link design.
- Verification of SoC bus, peripheral, memory access via AHB-Lite slave interface, SPI interface.
- Support Sensor team on recovery algorithm of Differential sensing scheme for capacitance sensor.

Touchscreen controller IC for active pen MPP2.0 support

- Joint on system on chip architecture design based on MCU core Andes D10 and MCU platform Andes AE210P.
- Synchronization processor design based on Matched filter.
- Decoder block design based on FSK demodulator, FFT processor, fast-DFT processor.
- DSP modules designs such as Digital filters (IIR low-pass filter, FIR filter) for noise cancelling.
- Verification of SRAM, EEPROM, Chip-register access via SPI-slave interface.

Patents submission (under review)

- ”Means and method for touchscreen controller in a synchronization system with active pen”.
- ”Means and method for touchscreen controller in an a-synchronization system with active pen”.

Publications in University of Ulsan

Researches on CIT lab:

- *A novel construction for quantum stabilizer codes based on binary formalism*. https://doi.org/10.1142/S0217979220500599
- *The fog on: Generalized teleportation by means of discrete-time quantum walks on N -lines and N -cycles*. https://doi.org/10.1142/S0217984919502701

Training courses:

- *System on chip design with Arm Cortex-M processor*, Ebook and course by Joseph Yiu, arm Education Media.
- *Digital signal processing with FPGA*, Ebook and Course by Uwe Meyer-Baese, Floria state University.

Project in ANSV

Billing system phase V

- Deployed, installed VMS mobile network charging services such as network, SUN storage, Solaris server, Red hat OS.
- Installed, bugs tracked, upgraded the telecommunication signalling, charging services, Oracle database.

Projects in SVMC

Samsung galaxy mobile project

- Developed, tested, handled of setting application for Samsung mobile phone in South East Asia markets.
- Build setup for phone binary, FOTA binary of SAMSUNG mobile models in SEA.

Project in PRDCV

Panasonic eCockpit automotive system

- Designed 3D model by design tool to generate 3D data.
- Simulated, re-construction 3D model Hachune by 3D rendering engine Orge3D for e-Cockpit project.