Curriculum Vitae – Duc Manh NGUYEN

Personal Information

Dr. Duc Manh Nguyen
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I was born in Hai-Duong City, Viet-Nam in November 1989. I have received my bachelor degree of electronic and telecommunication from Ha-Noi university of science and technology (HUST) in 2012 and my Ph.D. degree of electrical engineering from University of Ulsan, Korea at Feb., 2020. From 2012 to 2014, I was a software engineer at Samsung Electronic Viet-Nam. From 2014 to 2015, I was a system engineer at VNPT (Viet-Nam Posts and Telecommunications Group). Now, I am working as Researcher Engineer at G2Touch company in Pankyo, Seongnam city Korea from March, 2020.

Education

PhD fellow in school of electrical engineering, UOU (2015-2020).
Thesis advisor: Prof. Sunghwan Kim (School of electrical engineering, UoU)
Thesis title: Study on quantum error correction code and quantum algorithms.

Bachelor degree in electronics and telecommunications engineering from Ha-Noi university of science and technology (HUST) (2007-2012).
Thesis advisor: Dr. Cong Thanh Pham (School of Electronic and Telecommunication engineering (SET), HUST).
Thesis title: Using GA (genetic algorithm) and PSO (particle swarm optimization) for optimization of reflect-array antenna.

Job experiences

All time Additional works

1. Book authors: I with my team are proposing a online book to CRC Press. The title is Role of Technology in the Sustainable development of Smart Cities. My role is to handle a chapter of Flexible communications technologies. (Enter production will be 01 April, 2020)
2. Technical Committee: INFOCOMP 2019, 2020. ICTCC and ICCASA 2019, 2020.
3. Journal Reviewer: IEEE Communication letter. IEEE Access. International journal of Modern Physical B. Indian
4. Teaching assistant: Digital signal processing class 2019. Journal of Physics.

2020 March → present Researcher Engineer at G2touch, Pankyo, Seongnam city, Korea

Jobs: SoC team where we design and develop the touch controller IC. My role on SoC team is:

1. MPP2.0 signal emulator which can generate the pen signal with select-able mode and frequency.
2. FFT based frequency analyzer tool which to determine the pen mode and frequency detected.
3. Architecture design: based on select-able tool and data, we test multiple data and choose the suitable parameter such as Sampling frequency, length of FFT, bits of ADC.
4. Sensing techniques based on pattern design, based on driving frequency.
5. Palm rejection algorithm for large touch screen.
6. Patents survey for new generation active pen such as MPP2.5, USI.

2015 February → February, 2020 Researcher assistant, Coding and information theory lab, UOU.
Research interests:

1. My research topics is quantum information theory, which include quantum error correction codes, quantum cryptography based on quantum algorithm, and quantum network based on quantum walks.
2. Finished numerous peer-review international papers, international conferences papers, and Korea domestic conference papers on quantum information topic researches.
3. Finished an IoT project. It aims to design the location estimation algorithm for Indoor position. I designed a calculation algorithm and test it with Arduino Nano board with HM-10, BLE MIDASCON, and LCD I2C.
4. A joint research project with G2touch company. It aims to analysis the communication protocols (frame structure, modulation techniques, error control codes) in active pen MPP2.0 (Microsoft pen protocol 2.0) and design the Frequency Analyzer tool based on FFT to analysis pen signal (MATLAB GUI is made to read signal from txt file and show in time and frequency domain).

Lab website: https://sites.google.com/site/citulsan/home

2014 June → 2015 Jan Network engineer, Advanced Network System VietNam (ANSV), VNPT Technology, VNPT, Ha-Noi, Viet-Nam.
Jobs: maintain and deploy for OSP platform, Instant Convergent Charging services for Intelligent Network of Vietnam Mobile Telecom Services Company.

2012 September → 2014 May Software engineer, Samsung electronic Viet-Nam for Mobile Research and Development Center (SVMC), SEV, Ha-Noi, Viet-Nam.
Jobs: develop and maintain Samsung android smart-phone models for SEA region.

2012 January → March Internship student, Panasonic research and development center Viet-Nam company (PRDCV), Panasonic Viet-Nam, Ha-Noi, Viet-Nam.

Jobs: simulate the 3D model by Orge 3D engine. Then, evaluate and compare the performance to Irrlicht 3D engine (C++ open source). It aimed to select the better one for e-Cockpit project.

Referees

1 Prof. Sunghwan Kim, School of Electrical and Electronic Engineering, University of Ulsan (UOU), Korea, +82-52-259-1401, email: sungkim@ulsan.ac.kr

2 Dr. Cong Thanh Pham, School of Electronic and Telecommunications, Ha Noi university of Sciences and Technologies (HUST), Ha-Noi, Viet-Nam, +84-4-38692242, email: cong.phamthanh@hust.edu.vn

3 Dr. Nam Hoang Vuong, School of Electronic and Telecommunications, Ha Noi university of Sciences and Technologies (HUST), Ha-Noi, Viet-Nam, +84-4-, email: namvh-fet@mail.hut.edu.vn

Computer skills

Programming MATLAB, Embedded C/C++, DSP with STM32F429I, LaTeX, Python, Shell-script.

Transformation 1D, 2D Fourier transformation for signal, images processing. Hadamard transformation. Wavelet transformation. Hilbert transformation.

Computation Developed computation tools by MATLAB for quantum computing. Used MAGMA for Computer and Algebra calculation.

Open source Arduino, Anaconda, Open GL, Orge 3D, projectQ, Android SDK.

OS Windows, Unix, Linux.

Servers and Databases SUN Solaris, HP server, Storage STK, Alcatel Omni Switch, Cissco Router, Oracle.

Additional information

Language Vietnamese (native), English (fluent), Korean (basic).

Hobby Reading historical, mathematical, and sciences. Watching historical, comedy films. Listening to classic, folk, country music. Playing tennis, soccer, football fantasy.

Update June. 2020.

Publications

All my publications can be seen via following websites:

1 My google scholar site: https://scholar.google.com/citations?user=ZpKPvGEAAAAJ&hl=en

2 My ORCiD site: https://orcid.org/0000-0002-4527-3358

All my papers are listed as follows. Here, **C** stands for conference paper and **J** stands for Scopus or SCI/SCIE peer-review, international journal papers:

(J1) **D.M. Nguyen**, S. Kim. *Minimal-Entanglement Entanglement-Assisted Quantum Error Correction Codes from Modified Circulant Matrices*. Symmetry. 9(7) pp(122) (7/2017). (SCIE, Q2, IF(1.457)) https://doi.org/10.3390/sym9070122

(J2) **D.M. Nguyen**, S. Kim. *Quantum stabilizer codes construction from Hermitian self-orthogonal codes over GF(4).* Journal of Communications and Networks. 20(3) pp(309-315) (6/2018). (SCIE, Q2, IF(1.252)) https://doi.org/10.1109/JCN.2018.000043

(J3) **D.M. Nguyen**, S. Kim. *New Constructions of Quantum Stabilizer Codes Based on Difference Sets.* Symmetry. 10(11) pp(655) (11/2018). (SCIE, Q2, IF(1.256)) https://doi.org/10.3390/sym10110655

(J4) **D.M. Nguyen**, S. Kim. *Quantum Key Distribution Protocol Based on Modified Generalization of Deutsch-Jozsa Algorithm in d-level Quantum System.* International Journal of Theoretical Physics, 58(1) Jan. 2019. (SCIE, Q3, IF(1.121)) https://doi.org/10.1007/s10773-018-3910-4

(J5) **D.M. Nguyen**, S. Kim. *Multi-Bits Transfer Based on the Quantum Three-Stage Protocol with Quantum Error Correction Codes.* International Journal of Theoretical Physics, 58(6) Apr. 2019. (SCIE, Q3, IF(1.121)) https://doi.org/10.1007/s10773-019-04098-4

(J6) **D.M. Nguyen**, S. Kim. *The fog on: Generalized teleportation by means of discrete-time quantum walks on N -lines and N -cycles.* Modern Physics Letters B. 33(23), 1950270, Aug. 2019. (SCI, Q4, IF(0.731)) https://doi.org/10.1142/S0217984919502701

(J7) M.Zidan, A. Abdel-Aty, **D.M. Nguyen**, S. Hegazy, Y. Al-Sbou, H. Eleuch and M. Abdel-Aty, *A Quantum Algorithm based on Entanglement Measure for Classifying Boolean Multivariate Function into Novel Hidden Classes.* Results in Physics, 15, 102549, 2019. (SCIE, Q1, IF(3.02)) https://doi.org/10.1016/j.rinp.2019.102549

(J8) **D.M. Nguyen**, S. Kim. *New construction of binary and non-binary quantum stabilizer codes based on symmetric matrices.* International Journal of Modern Physics B, 33(24), 1950274, 2019. (SCI, Q4, IF(0.863)) https://doi.org/10.1142/S0217979219502746

(J9) **D.M. Nguyen**, S. Kim. *Quantum Stabilizer Codes Based on a New Construction of Self-orthogonal Trace-inner Product Codes over $GF(4)$.* International Journal of Modern Physics B, 34 (5), 2050017, 2019. (SCI, Q4, IF(0.863)) https://doi.org/10.1142/S0217979220500174

(J10) **D.M. Nguyen**, S. Kim. *A novel construction for quantum stabilizer codes based on binary formalism.* International Journal of Modern Physics B, 34 (8), 2050059, 2020. (SCI, Q4, IF(0.863)) https://doi.org/10.1142/S0217979220500599

(J11) **D.M. Nguyen**, S. Kim. *A Novel Quantum No-Key Protocol for Many Bits Transfer with Error Correction Codes.* Advances in Science, Technology and Engineering Systems 5 (2), 781-785, 2020. (Scopus) 10.25046/aj050298

(J12) Binh A. Nguyen, Viet Q. Tran, Khoa D. Ta, Manh Hoang, Thien V. Truong, Nhan D. Nguyen, **D.M. Nguyen**, *Simulation of Quantum Computation via MAGMA Computational Algebra System.* International Journal of Advanced Trends in Computer Science and Engineering, 9 (2), 1757-1761, 2020. (Scopus) https://doi.org/10.30534/ijatcse/2020/130922020

(J13) Binh A. Nguyen, Viet Q. Tran, Khoa D. Ta, Manh Hoang, Thien V. Truong, Nhan D. Nguyen, **D.M. Nguyen**, *A Novel Framework for Simulation of Quantum Information System.* International Journal of Advanced Trends in

Computer Science and Engineering, 9 (2), 1752-1756, 2020. (Scopus) https://doi.org/10.30534/ijatcse/2020/129922020

(C1) **D.M. Nguyen**, S. Kim. *A Study on Simulation of Quantum Error Correction Codes by Using MATLAB Program.* in Proceedings of Symposium of the Korean Institute of communications and Information Sciences. pp(248-249) (1/2016). http://www.dbpia.co.kr/Journal/ArticleDetail/NODE06609989

(C2) F.T.Z. Khanam, **D.M. Nguyen**, S. Kim. *Improved Reversible Data Hiding in Encrypted Image Using New Fluctuation Function.* in Proceedings of Symposium of the Korean Institute of communications and Information Sciences. pp(404-405) (6/2016). http://www.dbpia.co.kr/Journal/ArticleDetail/NODE06739434

(C3) **D.M. Nguyen**, S. Kim. *Construction and complement circuit of a quantum stabilizer code with length 7.* in Proceedings of Eighth International Conference on Ubiquitous and Future Networks (ICUFN), Wien, Austria. pp(332-336) (7/2016). https://doi.org/10.1109/ICUFN.2016.7537043

(C4) **D.M. Nguyen**, S. Kim. *A study on quantum stabilizer codes with Length 7.* in Proceedings of 12th International Forum on Strategic Technology (IFOST, Ulsan, Korea). (5/2017).

(C5) **D.M. Nguyen**, S. Kim. *Construction of quantum stabilizer codes from self-orthogonal linear codes.* in Proceedings of Symposium of the Korean Institute of communications and Information Sciences. pp(248-249) (6/2018). http://www.dbpia.co.kr/Journal/ArticleDetail/NODE07512514

(C6) **D.M. Nguyen**, S. Kim. *Application of additive codes over GF(4) on quantum error correction codes.* in chapter of: Frontiers in Intelligent Computing: Theory and Applications pp 116-122. (01/2020). https://doi.org/10.1007/978-981-32-9186-7_13

(C7) H.T.Dao, **D.M. Nguyen**, S. Kim. *Water-filling-based pilot power optimization to maximize sum rate of target cell in massive MIMO systems.* in Proceedings of Symposium of the Korean Institute of communications and Information Sciences. pp(215-216) (1/2019). http://www.dbpia.co.kr/journal/articleDetail?nodeId=NODE08003276

(C8) **D.M. Nguyen**, S. Kim. *A Study on a Quantum Three Pass Protocol for Multiple Bits Transfer.* in Proceedings of Symposium of the Korean Institute of communications and Information Sciences. (6/2019). http://www.dbpia.co.kr/Journal/articleDetail?nodeId=NODE09234961

(C9) **D.M. Nguyen**, S. Kim. *A quantum three pass protocol with phase estimation for many bits transfer.* in Proceedings of International Conference on Advanced Technologies for Communications (ATC 2019, Ha-Noi, Viet-Nam). (10/2019). 10.1109/ATC.2019.8924514