Curriculum Vitae

Duc Tri Phan

Wearable Devices

Photomedicine

Physiological Monitoring

Smart Health Care Education,
Pukyong National University,
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QUALIFICATION

Ph.D. Industry 4.0 Convergence Bionics Engineering — Mar 2020 - Mar 2023

Pukyong National University (PKNU), Republic of Korea

M.E. Interdisciplinary Program of Biomedical Mechanical & Electrical Engineering — Mar 2018 - Feb 2020

Pukyong National University (PKNU), Republic of Korea

B.E. Mechanical Engineering (Honor Program) — Aug 2013 - Feb 2018

Ho Chi Minh City University of Technology (HCMUT), Viet Nam

RESEARCH EXPERIENCE [More Information]

Pukyong National University, Nano-Bio Medicine Laboratory — Mar 2018 - Mar 2023

Advisor: Prof. Oh Junghwan

- Wearable, and Flexible Biosensors for Physiological Monitoring
- E-skin Therapy Patch Skin Wound Photomedicine
- IoT-connected Healthcare Application

TECHNICAL SKILLS

- PCB and Electronic Design: Altium Designer
- Deep Learning and Machine Learning: Python (Keras, TensorFlow, Pytorch)
- Mobile App Development: Android Studio (Java)
- Web Development: HTML, CSS
- Signal Processing and Statistical Analysis; MATLAB, Python
- Firmware Development: dsPIC16, dsPIC 32, ESP32, Arduino BLE, STM 32 (C/C++)

PEER-REVIEWED JOURNAL PAPERS [Scholar] [Research Gate]

1. **Phan, Duc Tri**, Quoc Bao Ta, Cao Duong Ly, Cong Hoan Nguyen, Sumin Park, Jaeyeop Choi, and Junghwan Oh (2022). "Smart Low Level Laser Therapy System for Automatic Facial Dermatological Disorder Diagnosis". IEEE Journal of Biomedical and Health Informatics (Awaiting Decision).
2. **Phan, Duc Tri**, Thi Tuong Vy Phan, Thanh Canh Huynh, Sumin Park, Jaeyeop Choi, and Junghwan Oh. "Noninvasive, Wearable Multi Biosensors for Continuous, Long-term Monitoring of Blood Pressure via Internet of Things Applications." Computers and Electrical Engineering 102 (2022): 108187.
3. **Phan, Duc Tri**, Cong Hoan Nguyen, Thuy Dung Pham Nguyen, Le Hai Tran, Sumin Park, Jaeyeop Choi, Byeong-il Lee, and Junghwan Oh. "A Flexible, Wearable, and Wireless Biosensor Patch with Internet of Medical Things Applications." Biosensors 12, no. 3 (2022)
4. **Phan, Duc Tri**, Le Hai Tran, Sumin Park, Jaeyeop Choi, Hyun Wook Kang, and Junghwan Oh. "Enhanced precision of real-time control photothermal therapy using cost-effective infrared sensor array and artificial neural network." Computers in Biology and Medicine 141 (2022): 104960.
5. **Phan, Duc Tri,** Sudip Mondal, Le Hai Tran, Vo Thi Mai Thien, Hieu Van Nguyen, Cong Hoan Nguyen, Sumin Park, Jaeyeop Choi, and Junghwan Oh. "A flexible, and wireless LED therapy patch for skin wound photomedicine with IoT-connected healthcare application." Flexible and Printed Electronics 6, no. 4 (2021): 045002.

6. **Phan, Duc Tri,** Quoc Bao Ta, Thanh Canh Huynh, Tan Hung Vo, Cong Hoan Nguyen, Sumin Park, Jaeyeop Choi, and Junghwan Oh. "A smart LED therapy device with an automatic facial acne vulgaris diagnosis based on deep learning and internet of things application." Computers in Biology and Medicine 136 (2021): 104610.
7. **Phan, Duc Tri,** Thi Tuong Vy Phan, Ngoc Thang Bui, Sumin Park, Jaeyeop Choi, and Junghwan Oh. "A portable device with low-power consumption for monitoring mouse vital signs during in vivo photoacoustic imaging and photothermal therapy." Physiological Measurement 41, no. 12 (2020): 125011.
8. **Phan, Duc Tri,** Ngoc Thang Bui, Tan Hung Vo, Sumin Park, Jaeyeop Choi, Sudip Mondal, Byung-Gak Kim, and Junghwan Oh. "Development of a LED light therapy device with power density control using a Fuzzy logic controller." Medical Engineering & Physics 86 (2020): 71-77.
9. Phan, Thi Tuong Vy*, **Duc Tri Phan*,** Xuan Thang Cao, Thanh-Canh Huynh, and Junghwan Oh. "Roles of chitosan in green synthesis of metal nanoparticles for biomedical applications." Nanomaterials 11, no. 2 (2021): 273.
10. Mondal, Sudip, Sumin Park, Tan Hung Vo, Jaeyeop Choi, Vu Hoang Minh Doan, **Duc Tri Phan**, Chang-Seok Kim, Byeong-il Lee, and Junghwan Oh. "Smart inexpensive quantitative urine glucose and contaminant bromide ion sensor based on metal nanoparticles with deep learning approach." Materials Chemistry and Physics (2022): 126289.
11. Bui, Ngoc Thang, Thi My Tien Nguyen, Gebremedhin Yonatan Ataklti, Quoc Cuong Bui, Tran Thanh Nam Dinh, **Duc Tri Phan,** Sumin Park, Jaeyeop Choi, Thi Thu Ha Vu, and Junghwan Oh. "Design of a High-Power Multilevel Sinusoidal Signal and High-Frequency Excitation Module Based on FPGA for HIFU Systems." Electronics 10, no. 11 (2021): 1299.
12. Bui, Ngoc Thang, **Duc Tri Phan,** Thanh Phuoc Nguyen, Giang Hoang, Jaeyeop Choi, Quoc Cuong Bui, and Junghwan Oh. "Real-time filtering and ECG signal processing based on dual-core digital signal controller system." IEEE Sensors Journal 20, no. 12 (2020): 6492-6503.
13. Bui, Ngoc Thang, Thi My Tien Nguyen, Tran Thanh Nam Dinh, Quoc Cuong Bui, Tan Hung Vo, **Duc Tri Phan,** Sumin Park et al. "Design of a Multichannel Pulser/Receiver and Optimized Damping Resistor for High-Frequency Transducer Applied to SAM System." Applied Sciences 10, no. 23 (2020): 8388

BOOK CHAPTER

1. **Phan, Duc Tri,** Thuy Dung Pham Nguyen, Sumin Park, Jaeyeop Choi, Sudip Mondal, and Junghwan Oh. "Advanced flexible electronic devices for biomedical application". Advanced Flexible Ceramics: Design, Properties, Manufacturing and Applications. Elsevier Press, 2022.

INTERNATIONAL COFFERENCES

1. **Phan, Duc Tri,** Thuy Dung Pham Nguyen, Sumin Park, Jaeyeop Choi, Sudip Mondal, and Junghwan Oh. " Design of FIR Filters to Enhance the Image Quality of Scanning Acoustic Microscope System". Conference of Korea Institute of Convergence Signal Processing, 2018.
2. Cong Hoan Nguyen, **Duc Tri Phan**, Tan Hung Vo, Sumin Park, Jaeyeop Choi, Junghwan Oh. " Low-laser therapy: Development of a mobile application for dermatological diagnosis with internet of things application ". SPIE Advanced Biophotonics Conference 2021 (SPIE ABC 2021), Republic of Korea.
3. **Phan, Duc Tri,** and Junghwan Oh. "Development of a Multichannel Pulser/Receiver for SAM ". World Conference on No-Destrictive Testing, 2021.

AWARDS AND HONORS

- BK 21 Scholarship, Interdisciplinary Program of Biomedical Mechanical & Electrical Engineering, Pukyong National University, 2022
- PUKNU Early Research Award 2021
- Scholarship for excellent students from Asuzac group and Datalogic Viet Nam, 2016
- Nidec Tosok Scholarship for excellent students in academic and social activities, 2016.

REFERENCES

Prof. Oh Junghwan (Ph.D. Advisor)
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