Thanh-Tai Duong, Ph.D. iD in

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Summary

- **Clinical Experience:**
  - Over 11 years as a medical physicist, specializing in radiation therapy, medical imaging, and nuclear medicine.
  - Led the commissioning of Vietnam's first Halcyon Linear Accelerator, showcasing proficiency in cutting-edge therapeutic technology.
  - Skilled in treatment planning, Acceptance Testing and Commissioning.
- **Teaching and Mentoring:**
  - Substantial experience teaching undergraduate students in Medical Physics and Biomedical Engineering, combining theoretical knowledge with practical applications
  - Composed and structured the curriculum for the Biomedical Imaging Technology subject
  - Successfully supervised and mentored both undergraduate and graduate students, aiding their academic and practical skills development.
- **Research:**
  - Authored more than 38 papers in peer-reviewed journals, achieving over 124 times, h-index of 6
  - Leading a dynamic research group in medical physics, comprising medical physicists from various hospitals and medical physics students, fostering a collaborative and innovative research environment
  - Demonstrated strong collaborative skills in working with professionals from multiple disciplines across the globe, fostering interdisciplinary research and innovation.
- **Expertise:** Monte Carlo simulation (EGSnrc, BEAMnrc, DOSXYZnrc, egs_brachy, eb_GUI, egs_mird, TOPAS, TOPAS-nBio, GAMOS), External beam therapy, Brachytherapy, Targeted radionuclide therapy, Radiation dosimetry, Deep Learning, Radiomics, Medical Image Processing

Education

Viet Nam National University-University of Science   **Ho Chi Minh City, Vietnam**
Doctor of Philosophy in Nuclear Physics   *Sep 2015 – Sep 2019*

- **Advisors:** Prof. Dr. Truong Thi Hong Loan, Dr. rer. nat. Nguyen Dong Son
- **Ph.D. Dissertation:** Dosimetric and Monte Carlo verification of jaws-only IMRT plans calculated by the Collapsed Cone Convolution algorithm for head and neck cancers.
- **GPA: 9.25/10**

Viet Nam National University-University of Science   **Ho Chi Minh City, Vietnam**
Master of Science in Nuclear Physics   *Sep 2010 – Sep 2012*

- **Advisor:** Prof. Dr. Chau Van Tao
- **Master's Thesis:** Implementing Jaws Only Intensity-Modulated Radiotherapy (IMRT) in Dong Nai Hospital: A Clinical and Technical Evaluation.
- **GPA: 7.5/10** (Thesis Mark: 9.4)

Viet Nam National University-University of Science   **Ho Chi Minh City, Vietnam**
Bachelor in Applied Physics   *Sep 2005 – Sep 2009*

- **Advisor:** Prof. Dr. Lam Quang Vinh
- **Bachelor's Thesis:** Synthesizing and fabricating CdSe nano quantum dots for cancer theranostics.
- **GPA:** 7.47/10 (Total Accumulated Credits: 210)

Selected publications

- **Duong, T.T.***, Luong, T.P., Nguyen, N.A.*, Huynh, V.T.S., Tran, M.L., Nguyen, X.H., Sandwall, P.A., Bradley, D.A. and Chow, J.C.L., *Dosimetric and radiobiological comparison between conventional and hypofractionated breast treatment plans using the Halcyon system*, **Frontiers in Oncology**, Vol. 13, pp.1259416, September **2023**. DOI: 10.3389/fonc.2023.1259416
- **Duong, T.T.***, Luong, T.O., Nguyen, D.S., Truong, T.H.L. and Chow, J.C.L., *Dosimetric and Monte Carlo verification of jaws-only IMRT plans calculated by the Collapsed Cone Convolution algorithm for head and neck cancers*, **Reports of Practical Oncology and Radiotherapy**, Vol. 24, No. 1, pp. 105-114, November **2019**. DOI: 10.1016/j.rpor.2018.11.004.
- **Duong, T.T.***, Nguyen, D.S., Truong, T.H.L., and Anson, H.P.W., *Quality assurance of the Jaws Only-Intensity Modulated Radiation Therapy plans for head-and-neck cancer*, **Physica Medica**, Vol. 38, pp. 148-152, May **2017**. DOI: 10.1016/j.ejmp.2017.05.059.

Working Experience

Western University, Schulich School of Medicine & Dentistry **London, Canada**
Postdoctoral Associate (PDA), Robarts Research Institute *May 2022 - present*

Supervisor: Dr. Ting-Yim Lee, Scientist

- I have been involved in a significant novel project focusing on radiotheranostics which is a combination of diagnostics and therapeutics that use one radioactive drug (e.g. ^{18}F-DCFPyL) to identify tumors and another one to treat them (e.g.^{177}Lu-PSMA-617). Therefore, we can see what we treat and we treat what we see!
- Implementation of radiotheranostics has the potential to improve patient outcomes, shorten recovery periods, alleviate pain, and generate substantial cost savings for the healthcare system by eliminating unnecessary interventions. This approach offers a knowledge-driven form of precision medicine through the combination of molecular imaging and molecular radiotherapy.

Nguyen Tat Thanh University **Ho Chi Minh City, Vietnam**
Lecturer, Department of Medical Physics *Sep 2022 - present*

- Coached and trained for medical physics graduate students, the first official medical physics training program in Vietnam
- Developed research activities in the field of medical physics

HCMC University of Technology and Education **Ho Chi Minh City, Vietnam**
Lecturer, Department of Industrial Electronics - Biomedical Engineering *Sep 2020 - Sep 2022*

Teaching, Researching, Mentoring, Lab instruction, AUN-QA programme assessment, Composing curriculum for the Biomedical Imaging Technology subject.

Dong Nai General Hospital **Dong Nai, Vietnam**
A Clinical Medical Physicist, Department of Radiation Oncology and Nuclear Medicine *Aug 2009 - Sep 2020*

Radiation therapy treatment planning, quality assurance of linear accelerator, radiation safety, researching and teaching.

- Conduct QA on Siemens Primus M5497 Accelerators, CT scanner, and treatment planning systems in accordance with TG-142 recommendations.
- Performed 3D-CRT and JO-IMRT treatment planning on Prowess Panther
- Oversight of special treatment procedures (3D-CRT, IMRT, HDR)
- Radiation safety committee member

Research Experience

Western University, Schulich School of Medicine & Dentistry **London, Canada**
Radiotheranostics project, Robarts Research Institute *May 2022 - present*

Project 1: Monte Carlo (MC) simulation for Radiotheranostics in prostate cancer
- Derived time-integrated activity (TIA) by predicting it from dynamic ^{18}F-DCFPyL PET/CT images through Logan graphical analysis.
- Predicted the absorbed doses delivered by ^{177}Lu-PSMA-617 using egs_mird, a Monte Carlo program developed inhouse based on EGSnrc.
- Calculated the biological effective dose (BED) with radiobiological modeling
- Developed a pipeline for personalized voxel-wise dosimetry using a MC simulation

Project 2: Combining targeted radionuclide therapy (TRT) using PSMA-ligand labelled with [177Lu]Lutetium-PSMA and External Beam Radiation (EBRT) for Prostate Cancer
- Predicted the absorbed doses delivered by ^{177}Lu-PSMA-617 using egs_mird
- Calculated the dose for EBRT using Eclipse treatment planning system (TPS)
- Applied the linear-quadratic model to combined modality radiotherapy (BED, TCP, NTCP)

Project 3: Combining targeted radionuclide therapy (TRT) using ^{177}Lu-PSMA-617 and Brachytherapy (HDR & LDR)
- Computed the dose for TRT using egs_mird
- Calculated the dose for for ^{192}Ir HDR & ^{125}I LDR using egs_brachy, a Monte Carlo program developed inhouse based on EGSnrc
- Applied the linear-quadratic model to combined modality radiotherapy (BED, TCP, NTCP)

Project 4: Comprising Monte Carlo and TG-43 calculated doses for Prostate Cancer
- Calculated the dose for ^{192}Ir HDR & ^{125}I LDR using egs_brachy
- Compared physical and biological distribution between TPS and MC

Dong Nai General Hospital   **Dong Nai, Vietnam**
Department of Radiation Oncology   *2015 – 2020*

Project 1: Calculation of Jaws-only IMRT (JO-IMRT) dose distributions based on the AAPM TG-119 test cases using Monte Carlo simulation and Prowess Panther treatment planning system (TPS).
- The aim of this project was to calculate the JO-IMRT dose distributions based on the AAPM TG-119 test cases using Monte Carlo (MC) simulation and Prowess Panther TPS.
- It was the first time that TG-119 test cases have been used in the dose calculation for JO-IMRT (multi-target, mock prostate, mock head-and- neck, and C-shape).
- It was the first time to commission the Prowess Panther TPS for JO-IMRT using MC simulation based on the TG-119.
- It was the first time DOSCTP was used for dose calculation of JO-IMRT based on the TG-119 report.

Project 2: Dosimetric and Monte Carlo verification of Jaws-only IMRT plans calculated by the Collapsed Cone Convolution algorithm for head and neck cancers.
- The aim of this project was to verify the Prowess Panther jaws-only intensity modulated radiation therapy (JO-IMRT) treatment planning (TP) by comparing the TP dose distributions for head-and-neck cancer with the ones simulated by Monte Carlo (MC).
- BEAMnrc was applied to simulate the beams from JO-IMRT plans.
- DOSCTP was applied to calculate dose distribution of 15 JO-IMRT plans.
- This was the first time this new JO-IMRT technique was evaluated by Monte Carlo simulation.

Project 3: Evaluating jaws-only intensity modulated radiation therapy technique at Dong Nai General Hospital by experiment.
- The aim of this project was to evaluate the accuracy of JO-IMRT technique by using advanced equipment such as: an ionization chamber (IBA FC65-P), MapCHECK 2, Octavius 4D to check the accuracy and safety of JO-IMRT technique before actual treatment.
- JO-IMRT exploits using jaws of LINAC for modulating of the intensity of the beam.
- 25 JO-IMRT plans were verified by an ionization chamber, Mapcheck2, and Octavius4D.
- The measurements showed JO-IMRT plans were accurate for treatment delivery.

Clinical Experience

University Medical ShingMark Hospital   **Dong Nai, Vietnam**
Medical Physicist, Department of Radiation Oncology   *2019 - present*

Since 2019, I have been actively involved in the establishing of the new Radiation Therapy department at Shingmark Hospital; included consulting on equipment selection, installation processes, commissioning, regulatory licenses, and clinical application.

- Setting up for a new radiotherapy department
- Acceptance Tested and Commissioned Halcyon (Varian)
- Train new radiation therapy staff members
- Develop radiation treatment plans for cancer patients on Halcyon
- Collaborated with physician team members

Dong Nai General Hospital   **Dong Nai, Vietnam**
Medical Physicist, Department of Radiation Oncology   *2009 - 2020*

My work focused on enhancing cancer treatment outcomes through the application of innovative research. Moreover, I have dedicated my efforts to integrating cutting-edge technologies and methodologies into cancer treatment practices, with the aim of optimizing patient care and advancing medical standards.

I have undertaken the following tasks:
- Performed CT simulation for radiotherapy treatment planning
- Planned for External Beam Radiation Therapy: 3D-CRT, IMRT, VMAT
- Patient-specific QA for IMRT and VMAT using QA equipment (Ion Chamber, MapCheck2, and Octavius 4D)
- Planned for Brachytherapy, Daily QA, and source exchange and calibration.
- Operated a Siemens Linear Accelerator to deliver treatment plans.
- Performed daily, weekly and monthly quality assurance tests on Siemens Primus M5497 Accelerators

Academic Achievements

- **Travel Bursary Award by Hokkaido University (Japan) and Stanford University (US):** Funding to join The 4th GI-CoRE/GCB Summer School for Molecular Biomedical Science and Engineering, Japan (Awarded 2022).
- **Travel Bursary Award by Hokkaido University (Japan) and Stanford University (US):** Funding to join the 6th GI-CoRE Summer School for Medical Physics, Japan (Awarded 2019).
- **Travel Bursary Award by International Atomic Energy Agency (IAEA) (Austria):** Funding to join the Regional Training Course on Basic Radiation Dosimetry, Molecular Biology and Radiobiology for Radiotherapy Medical Physics, Malaysia (Awarded 2019).
- **Travel Bursary Award by the Abdus Salam International Centre for Theoretical Physics (ICTP):** Funding to join the Joint ICTP-IAEA Workshop on Monte Carlo Radiation Transport and Associated Data Needs for Medical Application, Italy (Awarded 2017).
- **SEAFOMP Travel Awards (Thailand):** Funding to present PhD's thesis work at the 22nd International Conference on Medical Physics, Thailand (Awarded 2016).
- **Travel Bursary Award by the Abdus Salam International Centre for Theoretical Physics (ICTP) (Italy):** Funding to join the School on Medical Physics for Radiation Therapy: Dosimetry and Treatment Planning for Basic and Advanced Applications, Italy (Awarded 2015).
- **Student Research Award (Vietnam):** Funding one of the most outstanding researches conducted by student members of the VNUHCM-University of Science, Vietnam (Awarded 2008).
- **Student Research Award (Vietnam):** Funding one of the most outstanding students of the VNUHCM-University of Science, Vietnam (Awarded 2007, 2008).
- **Student Research Award (Vietnam):** Funding one of the most outstanding students of the VNUHCM-University of Science, Vietnam (Awarded 2007, 2008).

Training Courses

CIEMAT(Centre for Energy, Environmental and Technological Research)   **Barcelona, Spain**
Monte Carlo simulation [*Online*]   *Nov 2022 – Feb 2023*

- ○ **GAMOS/GEANT4 for medical physics and radiation protection simulations**
  - Radiotherapy
  - Radiation Protection
  - Nuclear Medicine Detectors
  - Protontherapy

Servizo Galego de Saude   **Pontevedra, Spain**
Nuclear Medicine [*Online*]   *Dec 2022 – Dec 2022*

- ○ **Course title: Patient dosimetry and occupational radiation exposure assessment arising from Lu-177, Ga-68, I-131 and Y-90 procedures**
  - Fundamentals of Theranostics with Lu-177/Ga-68 in Nuclear Medicine
  - Fundamentals of I-131, Y-90 treatments in Nuclear Medicine
  - Dose calculation in patients treated with Y90

Hokkaido University   **Hokkaido, Japan**
Biomedical Science and Engineering [*Online*]   *Feb 2022 – Mar 2022*

- ○ **The 4th GI-CoRE/GCB Summer School for Molecular Biomedical Science and Engineering**
  - Molecular imaging and molecular probes
  - Basics of radiation biology
  - Clinical application of proton beam therapy
  - Deep learning in biomedical science and engineering

Canadian Organization of Medical Physicists (COMP)   **Canada**
Medical Imaging [*Online*]   *Oct 2021 – Mar 2022*

- ○ **Imaging Lecture Series**

University Medical Shing Mark Hospital, Varian Medical Company   **Bien Hoa, Vietnam**
Clinical applications training - Halcyon System Onsite Training   *Mar 2020 –Sep 2020*

- ○ **ARIA and Eclipse v15.6, and Halcyon operations**
- ○ **Tutored practical exercises:**
  - Contouring, image registration, smart Segmentation
  - Treatment planning and plan evaluation
  - Quality assurance
  - Operation Halcyon system

International Atomic Energy Agency (IAEA)   **Kuala Lumpur, Malaysia**
Medical Physics   *Sep 1 –Sep 12, 2019*

- ○ **Regional Training Course on Basic Radiation Dosimetry, Molecular Biology and Radiobiology for Radiotherapy Medical Physics**

Hokkaido University   **Hokkaido, Japan**
Medical Physics [*Online*]   *Aug 19 - Aug 23, 2019*

- ○ **The 6th GI-CoRE Summer School for Medical Physics**
  - Treatment Planning for Radiation Therapy
  - Proton Treatment System in Hokkaido University
  - SBRT and IGRT
  - Monte Carlo Simulation in particle therapy applications
  - Practical Training: Treatment Planning and QA (Proton)

International Centre for Theoretical Physics (ICTP)   **Trieste, Italy**
Monte Carlo simulation   *Sept 18 - Sept 29, 2017*

- ○ **Joint ICTP-IAEA Workshop on Monte Carlo Radiation Transport and Associated Data Needs for Medical Applications — (smr 3148)**
  - Monte Carlo transport of photons and electrons in matter

- EGSnrc
- BEAMnrc

Dong Nai General Hospital, Varian Medical Company   **Bien Hoa, Vietnam**
Clinical applications training - GammaMed HDR BrachyTherapy System   *May 24 - May 28, 2015*

○ **ARIA and Eclipse v15.6, and GammaMed HDR**
○ **Tutored practical exercises:**
  - Contouring, image registration
  - Treatment planning and plan evaluation
  - Quality assurance
  - Operation GammaMed HDR system

International Centre for Theoretical Physics (ICTP)   **Trieste, Italy**
Medical Physics   *Apr 13 -Apr 24, 2015*

○ **School on Medical Physics for Radiation Therapy: Dosimetry and Treatment Planning for Basic and Advanced Applications — (smr 2694)**
  - Fundamental of (photon, electron) dosimetry
  - Fundamental radiobiology
  - Quality assurance in radiotherapy
  - TPS commissioning
  - Brachytherapy

Ho Chi Minh City Oncology Hospital   **Ho Chi Minh, Vietnam**
Brachytherapy   *Jul 01 - Oct 30, 2015*

○ **A hands-on clinical training course in Brachytherapy at Ho Chi Minh City Oncology Hospital**
  - The basic and general principles of brachytherapy
  - Practicing brachytherapy treatment planning
  - Quality assurance of brachytherapy treatment planning

Bach Mai Hospital   **Ha Noi, Vietnam**
IMRT techique   *May 01 - Aug 30, 2015*

○ **A hands-on clinical training course in external beam radiation therapy, specializing Intensity-modulated Radiotherapy (IMRT) at Bach Mai Hospital**
  - Practicing IMRT treatment planning for head and neck cancer
  - Patient specific QA for IMRT

Ho Chi Minh City Oncology Hospital   **Ho Chi Minh, Vietnam**
External beam radiation therapy: Advance   *Feb 2011 – Aug 2011*

○ **A hands-on clinical training course in external beam radiation therapy at Ho Chi Minh City Oncology Hospital**
  - Planning (3D Conformal, IMRT, VMAT)
  - Patient Specific QA
  - LINAC QA (daily, monthly, annually)

Cho Ray Hospital   **Ho Chi Minh, Vietnam**
External beam radiation therapy: Basic   *Apr 2010 – July 2010*

○ **A hands-on clinical training course in external beam radiation therapy at Cho Ray Hospital**
  - Planning (3D Conformal)
  - LINAC QA (daily, monthly, annually)

Editorial Activities

Reviewer:
○ Journal of Applied Clinical Medical Physics
○ Journal of Medical Physics
○ Journal of Medical Imaging and Radiation Sciences
○ Journal of Cancer Research and Therapeutics

○ Journal of X-Ray Science and Technology
○ Radiation Physics and Chemistry
○ Reports of Practical Oncology and Radiotherapy
○ Nuclear Engineering and Technology
○ Nuclear Science and Engineering
○ Egyptian Journal of Radiology and Nuclear Medicine
○ Cancer Reports
○ Acta Neurologica Scandinavica

Skills

Programming Language	Python, MATLAB, Monte Carlo (EGSnrc, TOPAS, GAMOS)
Software	LifeX, 3D-Slicer, ITK, CERR, DOSCTP, SPSS, Origin Lab
Treatment planning system	Prowess Panther, Varian and Aria Eclipse, Nucletron Elekta

Languages

Vietnamese	Mother tongue.
English	Reading, Writing, Listening, Speaking: Good.

Publications

Summary: I am directly involved in all aspects of my research projects, including study design, data collection, manuscript writing, journal selection, and response to peer reviews. Therefore, I often serve as the first author, corresponding author*, or both.

[43] **Duong, T.T.***, Sarno, D.D., Martinov, M., Fakir H., Bauman G., Thomson R., and Lee, T.T., *Combining Targeted Radionuclide Therapy (TRT) with External Beam Radiotherapy (EBRT) for Prostate Cancer: A Dosimetric and Radiobiological Simulation Study*, **Journal of Nuclear Medicine**,Vol. 64, pp.242528 **June 2024**. ISSN:2159-662X

[42] **Duong, T.T.***, Sarno, D.D., Martinov, M., Fakir H., Bauman G., Thomson R., and Lee, T.T., *Personalized Dosimetry for Targeted Radionuclide Therapy: Predicting Absorbed Dose from a Single Diagnostic Dynamic PET Study using Graphical Analysis and Monte Carlo Simulation*, **Journal of Nuclear Medicine**,Vol. 64, pp.242470 **June 2024**. ISSN:2159-662X

[41] Ghaseminejed, S., Sarno, D.D., **Duong, T.T.**, Opara, C., Bertolet, A., and Lee, T.T., *Micro vs Clinical Scale Dosimetry of Alpha Particle Targeted Radionuclide Therapy – Comparison of Absorbed Dose and DNA Damage*, **Journal of Nuclear Medicine**,Vol. 64, pp.242227 **June 2024**. ISSN:2159-662X

[40] Nguyen, V.T., Pham, N.T., **Duong, T.T.***, Truong, T.T.H.L., Sandwall, P.A., Bradley, D.A., Chow, J.C.L., *A Comparative Dosimetric Evaluation of Dynamic Conformal Arc Therapy and Volumetric Modulated Arc Therapy for Lung Stereotactic Body Radiotherapy*, **Physical and Engineering Sciences in Medicine**, **Under review 2023**.

[39] **Duong, T.T.***, Hoang, D.T., Nguyen, X.H., Nguyen, N.A., Sulieman, A. and Bradley, D.A., Sandwall, P.A., and Chow, J.C.L., *Evaluation of Beam Matching in Commissioning a Halcyon Accelerator using the Gamma Index Method*, **Nuclear Science and Engineering**, **Accepted**.

[38] Hoang, D.T., Pham, N.T., **Duong, T.T.***, Hoang.T.P.H., Omer, H., Sulieman, A., Bradley, D.A., Chow, J.C.L., *Scanning Protocol Influence on Relative Electron Density-CT Number Calibrations and Radiotherapy Dose Calculation for a Halcyon Linac*, **Radiation Physics and Chemistry**, **Under review 2023**.

[37] **Duong, T.T.***, Nguyen, T.N., Pham, A.T., Sulieman, A., Omer, H., Alirezaeih, Z., Bradley, D.A., and Chow, J.C.L., *A user-friendly deep learning application for accurate lung cancer diagnosis*, **Journal of X-Ray Science and Technology**,Vol. 33, No. 10, pp.1-12 **April 2024**. DOI:10.3233/XST-230255

[36] **Duong, T.T.***, Omer, H., Le, C.Q., Nguyen, X.H., Truong, V.M., Sulieman, A., Mattar, E., Toufig, H., Tamam, N., and Bradley, D.A., *An open-source software for calculating 1D gamma index in radiation therapy*, **Journal of King Saud University - Science**, Vol. 35, No. 10, pp.102937, October **2023**. DOI:j.jksus.2023.102937

[35] **Duong, T.T.***, Luong, T.P., Nguyen, N.A.*, Huynh, V.T.S., Tran, M.L., Nguyen, X.H., Sandwall, P.A., Bradley, D.A. and Chow, J.C.L., *Dosimetric and radiobiological comparison between conventional and hypofraction-*

ated breast treatment plans using the Halcyon system, **Frontiers in Oncology**,Vol. 13, pp.1259416, September **2023**. DOI: 10.3389/fonc.2023.1259416

[34] Nguyen, T.N., **Duong, T.T.***, Omer, H., Sulieman, A., and Bradley, D.A., *The initial design and construction of a 12 Channel Electrocar-diogram Device developed on an ADS1293 chip platform*, **Electronics**, Vol. 12, No. 11, pp.2389, May **2023**. DOI: 10.3390/electronics12112389

[33] Hoang, T.P.H., Pham, N.T., **Duong, T.T.*** and Ha, Q.L., Sulieman, A., Omer, H., Tamam, N., Almujally, A., Chow, J.C.L., and Lee, T.T., *Assessment of radiation exposure in a nuclear medicine department of an oncology hospital*, **Journal of Radiation Research and Applied Sciences**, Vol. 16, No. 2, pp.100564, June **2023**. DOI: 10.1016/j.jrras.2023.100564

[32] Tamam, N., Salah, H., **Duong, T.T.**, Omer, H., Sulieman, A., Bradley, D.A., *Evaluation of patients' and occupational radiation risk dose during conventional and interventional radiology procedures*, **Radiation Physics and Chemistry**, Vol. 207, pp.110818, June **2023**. DOI: 10.1016/j.radphyschem.2023.110818

[31] Jamb, L., Alkhorayef, M., Almuwanis, M., Omer, H., Alhasan, N., **Duong, T.T.**, Sulieman, A. and Bradley, D.A., *Assessment of the effective radiation dose and radiogenic effect in intravenous urography imaging procedures*, **Radiation Physics and Chemistry**, Vol. 200, pp.110351, June **2022**. DOI: 10.1016/j.radphyschem.2022.11035

[30] Almujally, A., Tamam, N., Sulieman, A., **Duong, T.T.***, Omer, H., Abuhadi, N., Salah, H., Mattar, E., and Bradley, D.A., *Evaluation of paediatric computed tomography imaging for brain and abdomen procedures*, **Radiation Physics and Chemistry**, Vol. 200, pp.110271, June **2022**. DOI: 10.1016/j.radphyschem.2022.110271

[29] Truong, V.M., Nguyen, X.H., Cao, D.V., **Duong, T.T.**, Pham, D.K., Nguyen, H.P., Nguyen, H.T., Dinh, T.H., Cao, V.H., Phan, V.C., Omer, H., Sulieman, A., Bradley, D.A. and Nguyen, N.A., *Determination of Fe and Tb concentrations in geological and environmental samples using the instrumental neutron activation analysis method combined with the $\gamma - \gamma$ coincidence technique*, **Radiation Physics and Chemistry**, Vol. 200, pp.110203, Nov **2022**. DOI: 10.1016/j.radphyschem.2022.110203

[28] **Duong, T.T.***, Luong, T.O., Pham, H.P., Sulieman, A., Abolaban, F.A., Omer, H. and Chow, J.C.L., *Dosimetric and radiobiological comparison of head-and-neck treatment plan using JO-IMRT and 3D-CRT*, **Saudi Journal of Biological Sciences**, Vol. 29, No. 8, pp.103336, October **2022**. DOI: 10.1016/j.sjbs.2022.103336

[27] **Duong, T.T.***, Truong, T.H.L., Sulieman, A., Tamam, N., Omer, H. and Bradley, D.A., *Measurement of neutron dose equivalent within and outside of a linac treatment vault using a neutron survey meter*, **Quantum Beam Science**, Vol. 5, No. 33, pp. 01-07, October **2021**. DOI: 10.3390/qubs5040033.

[26] Omer, H., Tamam, N., Algadi, S., Alameen, S., **Duong, T.T.** and Sulieman, A., *Elimination of Biological and Physical artifacts in Abdomen and Brain Computed Tomography Procedures using Filtering Techniques*, **Saudi Journal of Biological Sciences**, Vol. 29, No. 4, pp.2180-2186, October **2021**. DOI: 10.1016/j.sjbs.2021.11.043.

[25] **Duong, T.T.***, Hoang, D.T., Luong, T.O., Hamza, N., Truong, T.H.L. and Sitti, Y., *A comparison of the JO-IMRT dose distribution calculated by the SOURCE 8 and 20 in the DOSXYZnrc for head-and-neck cancer*, **International Journal of Radiation Research**, Vol. 19, No. 4, pp. 853-860, October **2021**. DOI: 10.1016/j.rpor.2018.11.004.

[24] Luong, T.O., **Duong, T.T.***, Truong, T.H.L. and Chow, J.C.L., *Calculation of Jaws-only IMRT (JO-IMRT) dose distributions based on the AAPM TG-119 test cases using Monte Carlo simulation and Prowess Panther treatment planning system*, **Nuclear Engineering and Technology**, Vol. 53, No. 12, pp. 4098-4105, December **2021**. DOI: 10.1016/j.net.2021.07.005.

[23] Phan, V.C., Nguyen, X.H., Nguyen, N.A., Pham, X.H., Mai, X.P., Pham, D.K., Truong, V.M., **Duong, T.T,** and Luu, H.T.D., *Application of artificial neural network in neutron/gamma pulseshape discrimination for EJ301 scintillation detector*, **Science and Technology Development Journal–Engineering and Technology**, Vol. 4, No.2, pp. 910-919, April **2021**. DOI: 10.32508/stdjet.v4i2.803.

[22] Luong, T.O., **Duong, T.T.*** and Truong, T.H.L., *Application of AAPM TG119 to evaluate the Intensity-Modulated radiotherapy (JO-IMRT) plan on the Prowess Panther treatment planning system*, **Science and Technology Development Journal–Engineering and Technology-Natural Science**, No. 5, Vol. 2, pp. 1239-1244, May **2021**. DOI: 10.32508/stdjns.v5i2.979.

[21] Luong, T.O., **Duong, T.T.*** and Truong, T.H.L., *Monte Carlo evaluation of air cavity and small field effects in JO - IMRT dose distributions on patients with head and neck cancer*, **Journal of Clinical Journal Medicine**, Vol. 66, pp. 50-55, December **2020**. DOI: 10.38103/jcmhch.2020.66.8.

[20] Nguyen, T.L., Hoang, D.V., **Duong, T.T.*** and Chow, J.C.L., *Dosimetric comparison of Intensity Modulated Radiation Therapy (IMRT) and Field-in-Field (FIF) technique for head-and-neck cancer*, **Journal of radiotherapy**

practice, pp. 1-6, November **2020**. DOI: 10.1017/S146039692000977.

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Conference presentation

[12] **Duong, T.T.***, Sarno, D.D., Martinov, M., Fakir H., Chung, K., Bauman G., Thomson R., and Lee, T.T., *Personalized Dosimetry for Targeted Radionuclide Therapy: Predicting Absorbed Dose from a Single Diagnostic Dynamic PET Study using Graphical Analysis and Monte Carlo Simulation*, **The SNMMI Annual Meeting**, **Toronto, 2024** [Poster].

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[6] **Duong, T.T.***, Nguyen, D.S., Truong, T.H.L., Hoang, D.T., *A method for determination of the initial beam parameters in Monte Carlo Linac simulation*, **10th International Seminar on Medical Physics and 1st AMDI International Oncology Symposium**, **Malaysia, 2019** [Oral].

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[4] **Duong, T.T.***, Oanh L. T, Loan T. T. H, James C.L.C, *Monte Carlo Verification of Jaws-Only IMRT Dose Distributions From Prowess Panther System On Octavius 4D Phantom*, **AAPM 60th Annual Meeting & Exhibition**, **Nashville, 2018** [Poster].

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Teaching Experience

o HCMC University of Technology and Education, Ho Chi Minh, Viet Nam
  - Biomedical Imaging Technology (BIIM332865)- Average number of students annually: 50
  - Biomedical Image Processing Lab (BIMP311865) - Average number of students annually: 25

- Biomedical Information Systems Lab (BSPR411965) - Average number of students annually: 25
- Capstone Project (CAPR411265) - Average number of students annually: 6

o Lac Hong University, Dong Nai, Viet Nam
  - General Physics Experiment for Pharmacy (Phys102012) - Average number of students annually: 100
o Tra Vinh University, Tra Vinh, Viet Nam and Dong Nai University, Dong Nai, Viet Nam
  - Biophysic (BIO04213) - Average number of students annually: 100

Mentoring Experience

Summary: I have supervised over 25 undergraduate students on their thesis projects. Here are a few examples.

o HCMC University of Technology and Education, Ho Chi Minh, Viet Nam
  - Student's Name: Vo Kieu Phuong
    · Period: 2017-2021
    · Project: Application of deep learning and radiomics to predict the lung cancer
    · Current Position: Product Specialist, SAGOMED JSC
  - Student's Name: Nguyen Huynh Tai
    · Period: 2017-2021
    · Project: The initial design and construction of a 12 Channel Electrocar-diogram Device developed on an ADS1293 chip platform
    · Current Position: Technical Staff, Hoang Le Medical Equipment Co.,Ltd
o University of Science - VNUHCM, Ho Chi Minh, Viet Nam
  - Student's Name: Tran Phat
    · Period: 2012-2016
    · Project: Patient specific quality assurance for IMRT using MatrixX and Octavius 4D
    · Current Position: Medical physicist, Children's Hospital
  - Student's Name: Hoang Duc Tuan
    · Period: 2012-2016
    · Project: Monte Carlo simulation for LINAC
    · Current Position: Medical physicist, Shingmark hospital
  - Student's Name: Nguyen Thi Hong Trang
    · Period: 2012-2016
    · Project: Dosimetric and radiobiological comparison between 3D-CRT and JO-IMRT
    · Current Position: Medical physicist, HCMC Oncology Hospital
  - Student's Name: Luong Thi Oanh
    · Period: 2013-2017
    · Project: Dosimetric and Monte simulation for AAPM TG-119
    · Current Position: Medical physicist, HCMC Oncology Hospital
  - Student's Name: Nguyen Thi Hoa
    · Period: 2014-2018
    · Project: Evaluation IMRT using radiobiological model
    · Current Position: Medical physicist, HCMC Oncology Hospital
o Nguyen Tat Thanh University, Ho Chi Minh, Viet Nam
  - Student's Name: Nguyen Truong Sang
    · Period: 2018-2022
    · Project: Application of deep learning and radiomics to predict head and neck cancer
    · Current Position: Medical physicist, Cho Ray Hospital

Memberships in Professional Societies

o American Association of Physicists in Medicine (AAPM): 2012-present
o Canadian Organization of Medical Physicists (COMP): March 2024-present
o International Radiation Physics SocietyVietnam Society of Medical Physics (VSMP): 2009-present

○ International Radiation Physics Society (IRPS): 2022-present
○ Vietnam Physical Society (VPS): 2009 – present

References

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