REZA KALANTAR

PhD Researcher • Cancer Imaging • Deep Learning

Website: https://rekalantar.github.io/

EDUCATION

The Institute of Cancer Research, London, UK
OCT 2019 - PRESENT

PHD DEEP LEARNING IN CANCER IMAGING AND ONCOLOGY

Research Focus: Developing novel artificial intelligence (AI) frameworks for large-scale pelvic cancer diagnosis, segmentation and quantitative tumour analysis

Key Topics:
- CT, Multi-parametric MRI and RTStruct processing (Dicom, Nifti, RTS)
- Supervised and Unsupervised Image Synthesis (GANs, Diffusion Models)
- Domain Adaptive Segmentation (UNet, LSTM, Vision Transformers)
- Large-scale Transfer Learning (VGG, DenseNet, ResNet, Domain-Specific)
- Image Registration, Super-Resolution and Reconstruction
- AI Explainability (Activation Mapping, GRAD-CAM)

Imperial College London, London, UK
SEP 2018 - SEP 2019
Distinction

MRES MEDICAL ROBOTICS AND IMAGE-GUIDED INTERVENTIONS

Individual Project: Gaze-guided assistive robotics for patients with motor impairment using deep learning and robotic manipulators

Team Project (Team Leader): Dietary intake recognition and volume estimation using deep learning (YOLO) and simultaneous localisation and mapping (SLAM)

University of Leeds, London, UK
SEP 2013 - JULY 2018
Upper Second Class

MENG & BENG MEDICAL ENGINEERING

MEng Team Project: Tribocorrosion of Nitinol stents under tension using mechnical design in-situ and computational modeling

BEng Individual Project: Analysis on biomechanical properties of porcine cortical bone

Hong Kong University of Science and Technology
SUMMER 2017

BUSINESS AND TECHNOLOGY INNOVATION (ERASMUS)

Key Topics: Business, Marketting,Research and exposure to emerging technology startups

Simon Fraser University, Vancouver, Canada
SEP 2015 - JUNE 2016

ENGINEERING SCIENCE (ERASMUS)

Key Topics: Calculus; Linear algebra; Biomechanics; Physiology and Kinesoology; Engieering hardware and software design

Uxbridge College, London, UK
SEP 2011 - JULY 2013

A-LEVELS

Topics: Mathematics; Further Mathematics; Physics; Persian Language; Chemistry (AS)

PUBLICATIONS

MDPI Diagnostics Journal

Automatic Segmentation of Pelvic Cancers using Deep Learning: State-of-the-Art Approaches and Challenges (October, 2021)

Frontiers in Oncology Journal

CT-Based Pelvic T1-Weighted MR Image Synthesis Using UNet, UNet++ and Cycle-Consistent Generative Adversarial Network (Cycle-GAN) (July, 2021)

International Orthopaedics Journal

Deep learning COVID-19 detection bias: accuracy through artificial intelligence (May, 2021)

INTERNATIONAL CONFERENCES

ASTRO 2022

Organs-at-Risk Segmentation on T_2-Weighted Magnetic Resonance Imaging Using a Transformer-Based Model

ASTRO 2022

Prediction of Patients at Risk of Pelvic Insufficiency Fractures Following Pelvic Radiotherapy

ICR 2022

Artificial Intelligence for Automatic Segmentation of Organs-at-Risk (OARs) and Gross Tumour Volume (GTV) for Cervical Cancer on Magnetic Resonance Imaging (MRI)

ISMRM 2021	Synthetic MRI-assisted Multi-Wavelet Segmentation Framework for Organs-at-Risk Delineation on CT for Radiotherapy Planning
ISMRM 2020	CT-based Synthetic pelvic T_1-weighted MR Image Generation using a Deep Convolutional Neural Network (CNN)
Hamlyn Symposium 2019	Gaze-Guided Assistive Robotic Suite For Patients with Motor Impairment

INDEPENDENT RESEARCH

Contrast-Enhanced to Non-Contrast CT Synthesis using Cycle-Consistent Generative Adversarial Network (Cycle-GAN) for Radiomics and Deep Learning in the Era of COVID-19

Covid-19 Detector iOS Application: Desgin and development of a deep learning classfier embedded in an iOS application for automatic disease diagnosis and crowd-sourcing for public Covid-19 research

EXPERIENCE

Imperial College London, London, UK
OCT 2018 - SEP 2019

COURSE REPRESENTATIVE
Responsibilities: Regular staff/student meeting - hosting student events

Nika Arvin Pouya ltd., Hong Kong, Iran (Remote)
SUMMER 2017

INTERNATIONAL REPRESENTATIVE (MEDICAL DEVICES)
Responsibilities: Formal and regular meetings with emerging medical startups - Develop technical and market understanding for international collaborations

Coursework Support Centre (CSC), London, UK
NOV 2011 - MAR 2012

ENGINEERING MATHEMATICS TUTOR
Responsibilities: Design and deliver course materials in engineering mathematics; developing regular teaching plans and assessments
Achievement: remarkable progress in mature students grades, all passed the qualification to enter professional jobs

CERTIFICATES

The Wizardry of artificial intelligence 2.0 (10 CME; 14 Category 1 CPD Credits), International Cancer Imaging Society (ICIS) *** **PyTorch for Deep Learning**, UDEMY *** **Fundamentals of Deep Learning**, NVIDIA *** **AI For Medical Diagnosis**, DEEPLEARNING.AI *** **Machine Learning A-Z: Hands on Python and R in Data Science**; UDEMY *** **Introduction to Good Clinical Practice (GCP)** (4 CDP Credits), National Institute of Health Research (NIHR)

AWARDS

- The prestigous PhD studentship at the Institute of Cancer Research (ICR) and the Royal Marsden Hospital (RMH), **worth £23,000 (+ £12,500 research budget) per annum**
- **MRes, Best poster design and presentation award** at Hamlyn Symposium Medical Robotics Showcase 2019, Imperial College London
- The Hamlyn Centre, Imperial College London **student scholarship worth £12,000** to support post-graduate studies
- The outstanding performer in A-levels Mathematics and Further Mathematics, Uxbridge College London **(press release)**
- Third place swimming (backstroke & 4x25 medley) regional championship, high school

SOFTWARE SKILLS

Programming Languages: Python, C/C++, Swift, MATLAB *** **Deep Learning Libraries:** PyTorch, TensorFlow, Keras, Monai, Scikit-Learn, etc. *** **Operating Systems:** Linux, Mac, Windows *** **Practical Software and Libraries:** Git, Docker, Google Colab, Adobe Illustrator/Photoshop/InDesign, Robotic Operating System (ROS), Numpy, Pandas, Scipy *** **Medical Imaging:** Dicom, Nibabel (Nifti), SimpleITK, PyDicom, ITKsnap, ImageJ, 3D Slicer, Horos

REFERENCES

Available Upon Request