Automated Breast Tumor Segmentation from Dynamic PET

LICENSING & VENTURES GROUP

Automated Tumor Segmentation from Dynamic PET

- Kinetic model analysis of the uptake and washout of targeted PET radiotracers, such as FDG, provides additional diagnostic power to separate breast cancer from healthy tissue and from other benign structures (such as inflammation).

- **Clinical Problem**: The recommended interval between FDG administration and the start of acquisition is 60 minutes to allow for sufficient uptake and lesion detection.

- **Solution**: Innovative, automated, dynamic approach for quickly and accurately diagnosing breast tumors
  - Time Activity Curves (TACs) and a novel artificial neural network algorithm allows for segmentation of cancerous breast lesions as early as ***15-20 minutes*** following injection of a radiotracer, such as FDG
  - With the new method, imaging begins at the time of radiotracer injection

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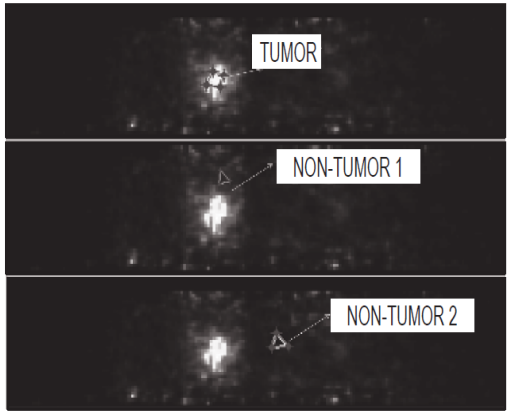
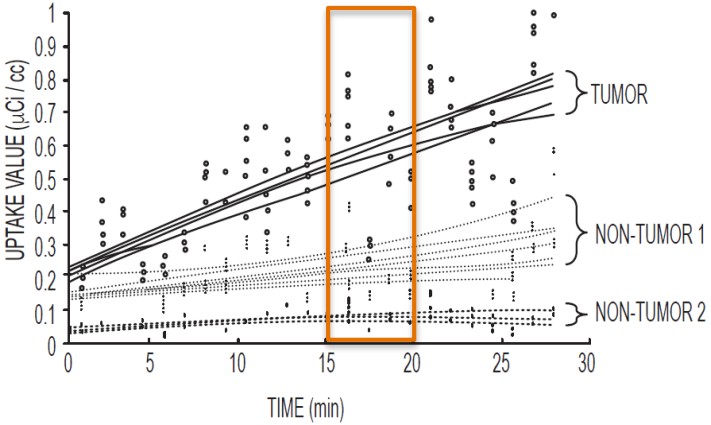
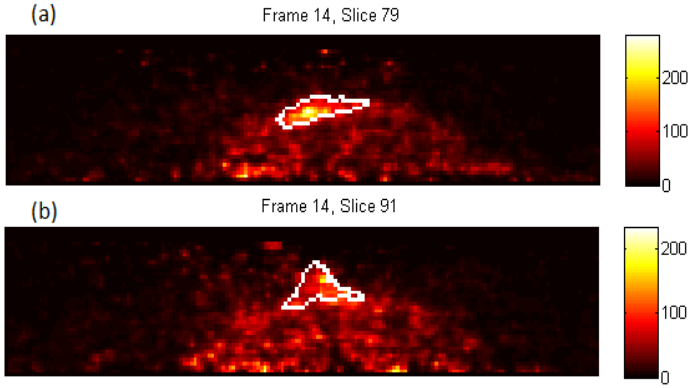
Improved Tumor Segmentation with Artificial Neural Network Algorithm





The uptake values of the tumor tissue versus non-tumor tissue show differences as early as 15-20 minutes following injection of the radiotracer.

Improved Tumor Segmentation with Artificial Neural Network Algorithm



The trained Advanced Neural Network algorithm quickly and accurately identifies the region of interest.

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Intellectual Property

- UVA TechID: KUNDU-NEURAL (2017-004)
  - Title: Automatic identification and segmentation of target regions in PET imaging using dynamic protocol and modeling
  - International patent application no. PCT/US2016/067535 filed December 19, 2016

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