Jahandar Jahanipour

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Summary

• 7 years of experience in proposing AI-based algorithms for existing problems to increase scalability and efficiency and improving upon existing AI methods and utilizing them in other scientific fields.
• Expert on AI fields including Machine Learning (ML), Deep Learning (DL), Computer Vision (CV) with hands-on experience on famous Python libraries such as TensorFlow, PyTorch, scikit-learn scikit-image and OpenCV with >5 years of experience in teaching.
• Expert in design of user-friendly Graphical User Interfaces (GUIs) using Python with libraries such as PyQt, tkinter and PySimpleGUI.

Experience

Postdoctoral Researcher

National Institute of Neurological Disorders and Stroke (NINDS)

Feb 2020 - Present (2 years 11 months +)

• Develop customized open-source visualization, machine learning, deep learning and computer vision tools for comprehensive 2D/3D image analysis of large multiplex fluorescence immuno-histology datasets.
• Hands on experience with large-scale datasets and big data, specifically big image datasets of 300,000 x 300,000 pixels and 150 channels.
• Propose new algorithms or utilize existing AI-based algorithms to generate quantitative results for hypothesis-testing.
• Develop user-friendly GUIs for algorithms and pipeline for ease-of-use.
• Provide consultation to biomedical image analysis companies on integration of visualization and quantification algorithms such as image registration, de-noising, segmentation, classification and phenotyping.

Research Assistant

University of Houston

Aug 2015 - Dec 2019 (4 years 5 months)

• Discovered and analyzed patterns using clustering techniques such as hierarchical clustering and the Dirichlet process mixture models in massive biomedical dataset of size > 300GB
• Utilized deep neural networks for abstract feature extraction and unsupervised cell type cluster labeling with > 88% accuracy
• Validated and edited the segmentation results of whole brain images using object detection methods such as Faster-RCNN with > 90% recall to increase the accuracy of the segmentation algorithms
• Used pattern recognition methods such as outlier detection to detect errors with AUC > 70%
• Designed GUI to visualize the mapping between the analysis results and the raw data
• Detected and classified cells in whole rat brain images with AUC of > 96%
• Developed a comprehensive pipeline for fluorescence signal correction of multi-spectral wide field microscopic images correcting for non-specific signals such as auto-fluorescence, non-uniform illumination, tissue folds, bleed-through and molecular co-localization

Education

University of Houston
Ph.D, Electrical Engineering
2015 - 2019

Isfahan University of Technology
M.S, Electrical Engineering
2012 - 2014

Skills

Artificial Intelligence (AI) • Machine Learning (ML) • Deep Learning (DL) • Computer Vision (CV) • Python (Programming Language) • MATLAB • CUDA • SQL • Git