Yuli Wang
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EDUCATION

Johns Hopkins University — Baltimore, MD
Ph.D. student, Biomedical Engineering — Aug. 2021 – 2026

University of California, Santa Cruz — Santa Cruz, CA
Master of Science, Electrical and Computer Engineering, GPA: 3.88/4.0 — Sep. 2019 – July 2021

Huazhong University of Science and Technology — Wuhan, China
Bachelor of Engineering, Mechanical Engineering, GPA: 3.74/4.0 — Sep. 2014 – Jul. 2018

EXPERIENCE

Johns Hopkins University — Aug. 2021 - Present
Research Assistant — *Advisor: Prof. Harrison Bai*

- Developed a coordinate convolution based deep learning method to achieve ultrasound-based MRI brain ventricle segmentation
- Developed a probability map based deep learning workflow for MRI brain ventricle parcellation with the aim for longitudinal studies on normal pressure hydrocephalus
- Designed and calibrated a scanning laser ophthalmoscopy in living human retina, including high-speed signal processing, Zemax optical simulation, and image analysis
- Developed a CNN-based model on longitudinal eye retina image registration for quantifying drug delivery

UC, Santa Cruz — Jun. 2019 - Jul. 2021
Research Assistant — *Advisor: Prof. Shiva Abbaszadeh*

- Developed a semiconductor based Head-and-Neck dedicated Positron Emission Tomography (PET), including data acquisition and hardware board design
- Developed a python simulation tool for modeling the detection sensitivity of optical properties-based radiation detection for PET
- Designed a penalized maximum-likelihood image reconstruction algorithm for improving limited-angle artifacts of the imaging system
- Built a region-based CNN and a modified Fully convolutional network, for image segmentation and targets localization in medical images

SKILLS

- Programming: Python (Pytorch, TensorFlow), MATLAB, C++
- Other skills: Hardware system raw data acquisition and processing, Half-Marathon running

PUBLICATIONS

Book Chapters:

- **Wang, Y.** and Abbaszadeh, S.*, "A promising new mechanism of ionizing radiation detection for positron emission tomography: modulation of optical properties", (Springer, Cham), *Advanced X-Ray Radiation Detection, Second Edition*.

Journal Papers:

- **Wang, Y.**, Herbst R. and Abbaszadeh, S.*, "Development and characterization of readout circuits for a two-panel head and neck dedicated PET system based on CZT detectors", *IEEE Transaction on Radiation and Plasma Medical Sciences*.
- **Wang, Y.**, Tao, L., Abbaszadeh, S. and Levin C. S.*, "Novel radiation detector concept based on ionization-induced modulation of optical polarization", *Physics in Medicine & Biology*.
- Zhou, P., Zheng, L, **Wang, Y.**, Wu, H. and Abbaszadeh, S.*, "Automatically Detecting Bregma and Lambda Points in Rodent Skull Anatomy Images", PLOS ONE.
- Romanchek, G., **Wang, Y.** Marupudi, H. and Abbaszadeh, S.*, "Performance of optical coupling materials in scintillator detectors post temperature exposure", *MDPI Sensors, 20(21): 6092*.
- Li, M., **Wang, Y.** and Abbaszadeh, S.*, "Development and initial characterization of a high-resolution PET detector module with DOI", *Biomedical Physics & Engineering Express, 6, p065020*.
- Zhang, H., **Wang, Y.**, Qi, J. and Abbaszadeh, S.*, 2020. "Penalized maximum-likelihood reconstruction for improving limited-angle artifacts in a dedicated head and neck PET system", *Physics in Medicine & Biology, 65 p.165016*.
- **Wang, Y.**, Li, Y., Yi, F., Li, J., Xie, S., Peng, Q. and Xu, J.*, 2019. "Two-crossed-polarizers based optical property modulation method for ionizing radiation detection for positron emission tomography", *Physics in Medicine & Biology, 64, p.135017*.

Peer-reviewed Conference Papers:

- **Wang, Y.**, Liu, Y., Wei, S., Yuan Xue, Luciano, M. G., Prince, J., and Carass, A., Deep Learning-Based Segmentation of Hydrocephalus Brain Ventricle from Ultrasound, (Submitted) to SPIE Medical Imaging 2024
- Wei, S., Liu, Y., Bian, Z., **Wang, Y.**, Prince, J., and Carass, A., Recurrent Self Fusion: Iterative Denoising for Consistent Retinal OCT Segmentation, (Accepted) to MICCAI workshp 2023
- **Wang, Y.**, Feng, A., Xue, Y., Luciano, M.G., Carass, A. and Prince, J.L., Automated Ventricle Parcellation and Evan's Ratio Computation in Pre-/Post-Surgical Ventriculomegaly, *IEEE ISBI 2023*.
- **Wang, Y.** Feng, A., Yuan, X., Carass, A. and Prince, J.*, Investigation of probability maps in deep-learning-based brain ventricle parcellation, *SPIE Medical Imaging 2023*.
- **Wang, Y.** and Yi, J.*, Deep learning based image registration method: with application to Scanning Laser Ophthalmoscopy (SLO) longitudinal images, *SPIE Medical Imaging 2023*.
- **Wang, Y.** and Abbaszadeh, S.*, Electronic noise characterization of a dedicated head-and-neck cancer PET based on CZT, in Journal of Nuclear Medicine, Vol. 62 (Soc Nuclear Med, 2021).
- **Wang, Y.** and Abbaszadeh, S.*, "Detection sensitivity of optical property-based radiation detection for PET: refraction index modulation", *IEEE NSS/MIC 2020*.
- **Wang, Y.**, Herbst, R. and Abbaszadeh, S.*, "Back-end readout electronic design and initial results: a head-and-neck dedicated PET system based on CZT", *2020 SPIE Medical Imaging*.
- **Wang, Y.**, Tao, L., Xu, J. and Levin, C. S.*, "Approaches to improving the detection sensitivity of optical modulation based radiation detection method for positron emission tomography. *IEEE NSS/MIC 2019*.

HONORS, AWARDS AND FELLOWSHIPS

- IEEE Nuclear Science Symposium and Medical Imaging Conference Best Student Paper runners-up of 2021 (6/115 total applicants);
- IEEE Nuclear Science Symposium and Medical Imaging Conference Trainee Grant Scholarship of 2019, 2020, 2021;
- UCSC Student Cultivate Grant Award of 2021;
- UCSC Graduate Student Travel Award of 2019, 2020;
- Outstanding undergraduate award and First-Class academic scholarship for Huazhong University of Sci. and Tech. of 2018.

SERVICES

- Reviewer for Journal of Medical Internet Research, IEEE Sensor Journal, Biomedical Physic and Engineering Express, MDPI Sensor.
- Student volunteer for 2018 IEEE EMC and Signal & Power Integrity conference
- Member of IEEE Eta Kappa Nu (HKN) and student instructor for UCSC HKN chapter.