

YULI WANG

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EDUCATION

University of california, Santa Cruz <i>Master of Science, Electrical and Computer Engineering, GPA: 3.88/4.0</i>	2019-now
Huazhong University of Science and Technology <i>Bachelor of Engineering, Mechanical Engineering, GPA: 3.75/4.0</i>	2014-2018

EXPERIENCE

University of california, Santa Cruz <i>Research Assistant</i>	Sep. 2019 - Present <i>Santa Cruz, CA</i>
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Head and Neck Organ-dedicated positron emission tomography (PET)

- Working on designing, building, and evaluation of a semiconductor based Head-and-Neck dedicated PET system, collaborating with SLAC National Accelerator Laboratory and Carle Foundation Hospital.
- Developing and characterizing a high-resolution and depth-of-interaction capable scintillator based detector for building the PET system.

New Mechanisms of Ionization Radiation Detection for Time-of-flight (ToF) PET

- Developing a python based simulation trials for studying the detection sensitivity of optical properties-based radiation detection for PET.
- Using new perovskite materials to study the prompt Cherenkov luminescence for PET, collaborating with Stanford MIIL lab.

Stanford University <i>Research Assistant</i>	Aug. 2018 - Feb. 2019 <i>Palo Alto, CA</i>
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Single photon detection using optical properties modulation based for PET

- Developed novel detectors for PET system based on electro-optical modulation of materials' optical properties, as a potential way to dramatically improve PET coincidence time resolution
- Researched high atomic number and high density photorefractive materials, including CdTe, LiNbO₃, PbGaBi and BSO with fast temporal properties.
- Collaborated with Stanford Nano Shared Facilities to investigate the dependence of detection sensitivity on electric field distribution for ultrafast optical modulation.

Huazhong University of Science and Technology <i>Research Assistant</i>	Oct. 2017 - Aug. 2018 <i>Wuhan, China</i>
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Investigation of Pockels effect in optical property modulation-based radiation detection method for PET

- Established various optical test beds to detect fast modulations of candidate materials' optical properties, and to investigate the feasibility of optical property modulation-based detection method for PET.
- Evaluated the sensitivity and stability of optical setups using optical properties modulation based detection method.

Electric energy harvesting supply for underwater wireless sensor networks

- Designed, prototyped and evaluated an energy-harvesting power supplier consisting with a helical turbine and a DC-DC converter based charging circuit.
- Implemented Computational Fluid Dynamic (CFD) simulation (based on ANSYS) to optimize the hydrodynamic characteristic of helical turbine.
- Used *SolidWorks* to build a 3D model of helical turbine and 3D printed it.
- Participated in charging circuit design utilizing booster, regulator and charger, and a PCB design based on *Altium Designer*.

RESEARCH INTERESTS

- **Technologies and methods for biomedical application.**
- **Bio-imaging and molecular imaging technologies** with particular interest in novel detector development, data acquisition and image reconstruction.
- **Machine learning and artificial intelligence** applied for clinical or biomedical areas.

SKILLS

- Programming: Proficient in MATLAB, Python (Keras, TensorFlow), FPGA (VHDL), Linux
- EDA/CAD tool: Altium Designer, Solidworks, AutoDesk CAD, Vivado/ISE Design Suite

HONORS, AWARDS AND FELLOWSHIPS

- IEEE Nuclear Science Symposium and Medical Imaging Conference Trainee Grant Scholarship of 2019
- UCSC Graduate Student Travel Award of 2019
- Outstanding Undergraduate Award for Huazhong University of Sci. and Tech. (HUST) of 2018
- First-Class Academic Scholarship for HUST of 2018
- Chinese Scholarship Council (CSC) Undergraduate Scholarship of 2017

PUBLICATIONS

Journal Papers:

- 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*.
- **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(13), p.135017.
- Jun Li, Dian He, Guozhu Chen, Chen Chen, **Yuli Wang**. Optimization design for cutting parameter of 38CrMoAl valve sleeve. *Construction Machinery* (Chinese Journal).

Conference Paper:

- **Wang, Y.**, Tao, L., Levin, C. S. and Xu, J., Approaches to improving the detection sensitivity of optical modulation based radiation detection method for positron emission tomography. *In 2019 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)* (pp. 1-3). IEEE.
- **Wang, Y.**, Tao, L., Levin, C. S. and Xu, J., Investigation of optical property modulation based ionizing radiation detection method for PET: two-crossed-polarizers based method. *In 2019 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)* (pp. 1-3). IEEE.
- **Wang, Y.**, Li, Z. and Xu, J., 2019, March. Investigation of Pockels effect in optical property modulation-based radiation detection method for positron emission tomography. *In Medical Imaging 2019: Biomedical Applications in Molecular, Structural, and Functional Imaging* (Vol. 10953, p. 1095306). International Society for Optics and Photonics..
- **Wang, Y.**, Li, Y., He, L., Shamsi, P. and Zheng, Y.R., 2018, March. An energy-harvesting power supply for underwater bridge scour monitoring sensors. *In Nondestructive Characterization and Monitoring of Advanced Materials, Aerospace, Civil Infrastructure, and Transportation XII* (Vol. 10599, p. 105990H). International Society for Optics and Photonics.

Working Paper:

- **Wang, Y.** and Abbaszadeh, S., Detection sensitivity of optical property-based radiation detection for PET: refraction index modulation. (Accepted), *2020 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)*.
- **Wang, Y.**, Tao, L., Abbaszadeh, S. and Levin C. S., Novel radiation detector concept based on ionization-induced modulation of optical polarization. (Submit), *Physics in Medicine & Biology*, (Jul. 2020).
- Li, M., **Wang, Y.** and Abbaszadeh, S., Development and initial characterization of a high-resolution PET detector module with DOI. (Submit), *Physics in Medicine & Biology*, (Jun. 2020).
- Romanchek, G., Marupudi, H., **Wang, Y.** and Abbaszadeh, S., Performance of optical coupling materials in scintillator detectors post temperature exposure. (Submit), *MDPI Sensors*, (Jul. 2020).

SERVICES

- Reviewer for the IEEE Transactions on Radiation and Plasma Medical Sciences and IEEE SORMA West 2020.
- Member of UCSC IEEE Eta Kappa Nu (HKN).