

# YULI WANG

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## EDUCATION

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

## EXPERIENCE

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<b>University of california, Santa Cruz</b> <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 study the detection sensitivity of optical properties-based radiation detection for PET.
- Using new perovskite semiconductor materials to study the prompt Cherenkov Luminescence for PET, collaborating with Stanford MIIL lab.

<b>Stanford University</b> <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, LiNbO<sub>3</sub>, 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.

<b>Huazhong University of Science and Technology</b> <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 and researched high atomic number and high density photorefractive materials with fast temporal properties.

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

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- **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

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- 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

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- 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

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### 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

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