Xihui Wang (Vicky)

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Education

PH.D. | 06/2019 – 06/2023 | PURDUE UNIVERSITY | WEST LAFAYETTE, IN
· Major: Electrical and Computer Engineering (GPA: 3.63 / 4.0)
· Research Area: Computer Vision, Digital Image Processing, Machine Learning, Deep Learning

THESIS MASTER | 08/2016 – 05/2019 | PURDUE UNIVERSITY | WEST LAFAYETTE, IN
· Major: Electrical and Computer Engineering
· Research Area: Signal Processing

BACHELOR | 08/2012 – 05/2016 | PURDUE UNIVERSITY | WEST LAFAYETTE, IN
· Major: Computer Engineering (GPA: 3.81 / 4.0)
· Minor: Mathematic

Skills & Courses

PROGRAMMING LANGUAGE
· Python, PyTorch, Matlab, C#, C++

Experience

GRADUATE RESEARCH ASSISTANT (PH.D.) | PURDUE UNIVERSITY | 06/2019 – CURRENT
· Developed a patented learning-based prediction system to predict sensor performance from sensor images to achieve real time quality control during manufacturing as a part of SMART (Scalable Manufacturing of Aware & Responsive Thin Films).
    o Used both machine learning and deep learning models to achieve optimal results.
    o Used an autotuning method to automatically find optimal parameter settings for prediction models.
    o Implemented several methods to improve image quality and extract key texture features from the sensor images using computer vision techniques.
· Closely coordinated with interdisciplinary scientist (including material scientists, chemical engineers, hardware engineers) to collectively build the next-gen thin-film sensor manufacturing platform.

RESEARCH INTERNSHIP | STATE GRID INTELLIGENCE TECHNOLOGY | 05/2018 – 08/2018
· Worked with the AIRD (Artificial Intelligence Robot Design) team to develop a motorized autonomous surveillance unit designed to patrol the power plants to provide real time data on the status of critical infrastructure.
· Designed the function that was embedded in the autonomous robot to separate the foreground and background objects from the images taken by the camera mounted on the robot using C++ on Visual Studio.

RESEARCH INTERNSHIP | HEWLETT – PACKARD | 05/2017 – 08/2017

- Developed a program to automatically diagnose commercial printers for hardware imperfections and pinpoint the specific component using audio signals in the STM (Smart Translator Monitor System) team. This feature is still in use today in select commercial printers. This was the most innovative feature for HP printers at the time.
    - Designed and implemented the self-diagnosing software embedded in the printer that took audio signal as input and returned the diagnosed report.
    - The self-diagnosing project is an object-oriented C# project written in Visual Studio.
    - Built a classifier using python that took the diagnosed report and returned the actual defective components of the printer.
- This feature was unveiled and demoed at the Global Partner Conference in September 2017.

GRADUATE RESEARCH ASSISTANT (MASTER) | PURDUE UNIVERSITY | 08/2016 – 05/2019

- Designed a framework for a printer diagnostic software to automatically detect internal hardware abnormalities and pinpoint the specific gear or component using only audio signals recorded from within the printer body.

UNDERGRADUATE RESEARCH ASSISTANT | PURDUE UNIVERSITY | 06/2015 – 05/2016

- Worked with the HP printer team to design and develop a program to detect and repair the imperfections caused by dust particles shown on the scanned image.

Patent

- "Manufacturing and deployment of printed devices using machine learning". US Serial No. 17/573,385; Purdue Ref. No. 69276-03

Publications

- Wang, X., Wu, R., Sara, A., Mi, Y., Shakouri, A., Chiu, G. T., & Allebach, J. P. (2022). Thin-film nitrate sensor performance prediction based on image analysis and credibility data to enable a certify as built framework. Manufacturing Science and Engineering Conference.
- Wang, X., Mi, Y., Shakouri, A., Chiu, G. T., & Allebach, J. P. (2022). Improvements to color image and machine learning based thin-film nitrate sensor performance prediction. Electronic Imaging.
- Wang, X., Maize, K., Mi, Y., Shakouri, A., Chiu, G. T., & Allebach, J. P. (2021). Thin-film Nitrate Sensor Performance Prediction Based on Preprocessed Sensor Images. *Electronic Imaging*, *2021*(16), 341-1.
- Wang, X. (2020). *Harmonic scrubber for detected modulation frequencies* (Doctoral dissertation, Purdue University Graduate School).
- Xue, Y., Kim, N., Wang, X., Allebach, J., Bolton, J. S., Chiu, G., el al. (2019). Digital signal processing for laser printer noise source detection and identification. In *INTER-NOISE and NOISE-CON Congress and Conference Proceedings* (Vol. 260, No. 1, pp. 674-682). Institute of Noise Control Engineering.

Honors & Certificates

DEAN'S LIST | PURDUE UNIVERSITY | 2013 – 2016
AWARD FOR SCHOLASTIC PERFORMANCE | PURDUE UNIVERSITY | SPRING 2014
ACADEMIC ACHIEVEMENT RECOGNITION | PURDUE UNIVERSITY | SPRING 2013