Pan WEI

Contact Information

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Work Experience

Amazon, 09/04/2018 - present, 101 Main Street, Cambridge, MA, 02142

- Participate in the design, development, evaluation, deployment and updating of data-driven models and analytical solutions for machine learning (ML) and natural language (NL) applications.
- Develop and apply statistical modeling techniques (e.g. Bayesian models and deep neural networks), optimization methods, and other ML techniques to different applications in business and engineering.
- Research and implement novel ML and statistical approaches to add value to the business.
- Ensure data quality throughout all stages of acquisition and processing, including such areas as data sourcing/collection, ground truth generation, normalization, transformation, cross-lingual alignment/mapping, etc.
- Build and release models that elevate the customer experience and track impact over time
- Present proposals and results in a clear manner backed by data and coupled with actionable conclusions
- Work with engineers to develop efficient data querying infrastructure for both offline and online use cases

Education

Mississippi State University, Mississippi State, MS, U.S.A.

Ph.D., Electrical and Computer Engineering, **Passed defense on May 22, 2018; *Formal graduation date:* August 10, 2018**

- Dissertation: *Fusion for object detection*

University of York, York, U.K.

Master of Science (by research), Electronics,

- Thesis: *Further exploitation of asymmetric binary tree coding of contour images*

Beihang University, Beijing, P.R.China

Bachelor of Engineering, Automation,

Honors and Awards

- Bagley College of Engineering "**Hall of Fame**" award. One of two selected for induction into the Hall of Fame 2018 for demonstrating superior academic achievement, leadership, and service/character. (2018)
- Graduate Student Ambassador for Department of Electrical and Computer Engineering (2017–2018)
- Women Team Champion at "National Collegiate Table Tennis Association (NCTTA) Dixie Division Tournament" (2016-2017, 2017-2018)

Research Experience

Research Assistant, Mississippi State University — Fall 2014 to present

- Fusion of an Ensemble of Augmented Image Detectors for Robust Object Detection (funded by a tier–one industrial company and Center for Advanced Vehicular Systems (CAVS) at Mississippi State University)
- Detection Fusion in an Industrial Multi-sensor Collision Avoidance System (funded by a tier–one industrial company and Center for Advanced Vehicular Systems (CAVS) at Mississippi State University)
- Mobile System for Physiological Signal Monitoring of the Foot and Ankle (applied for funding from US National Science Foundation (NSF))
- Measure Conflict in a Multi-source Environment for Fusion (funded by High Performance Computing Collaboratory (HPC2) at Mississippi State University)
- Runway Assessment via Remote Sensing (funded by U.S. Army Engineer Research and Development Center (ERDC))

Teaching Experience

Guest Instructor, Mississippi State University — Fall 2017

- ECE 8433: Statistical Signal Processing

Teaching Assistant, Mississippi State University — Fall 2014

- ECE 3714: Digital Devices

Patent

- Systems and Methods for Enhanced Collision Avoidance on Logistics Ground Support Equipment using Multi-sensor Detection Fusion, USA (pending), 2018.

Publications

Journal articles

1. **P. Wei**, J. E. Ball, D. T. Anderson, "Fusion of an ensemble of augmented image detectors for robust object detection," *MDPI journal Sensors*, 18(3), 894, March, 2018.
2. **P. Wei**, J. E. Ball, "Detection fusion in an industrial multi-sensor collision avoidance system," *MDPI journal Electronics*, 7(6), 84, May, 2018.
3. **P. Wei**, J. E. Ball, "Survey on object detection for advanced driver assistance systems (ADAS)," *in processing*, 2018.
4. T. Luczac, D. Saucier, R. Burch, J. E. Ball, H. Chander, A. Knight, **P. Wei**, T. Iftekhar, "Closing the wearable gap: mobile systems for physiological signal monitoring of the foot and ankle," **all authors contributed equally to this work**, *MDPI journal Electronics*, June, 2018.
5. H. Pan, S. Abdelwahed, J. White, **P. Wei**, J.E. Ball, A. Harsh, J. Gafford, M. Mazzola, "Cargo Tractor Collision Detection and Avoidance based on Model Prediction Control," *under review*, 2018.
6. L. Cagle, J. E. Ball, **P. Wei**, T. Reza, J. Gafford, D. Irby, Y. Liu, "Implementing collision avoidance code on an NVIDIA Jetson," *in processing*, 2018.
7. A. Harsh, J.E. Ball, **P. Wei**, "Onion-peeling outlier detection in 2-D data sets," *International Journal of Computer Application*, Vol.139 (3), pp.26-31, April, 2016.

Conference articles

1. **P. Wei**, J. E. Ball, D. T. Anderson, "Multi-sensor conflict measurement and information fusion," *SPIE Defense, Security, and Sensing*, April, 2016.
2. **P. Wei**, J. E. Ball, D. T. Anderson, A. Harsh, C. Archibald, "Measuring conflict in a multi-source environment as a normal measure," *IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP)*, December, 2015.
3. **P. Wei**, Z. You, and G. Mei, "Auto defect identification and classification system on asphalt pavement," *10th Annual Conference of Chinese Society for Geodesy Photogrammetry and Cartography*, October, 2013.
4. J. E. Ball, **P. Wei**, "Deep learning hyperspectral image classification using multiple class-based denoising autoencoders, mixed pixel training augmentation, and morphological operations," *International Geoscience and Remote Sensing Symposium (IGARSS)*, 2018.
5. J. E. Ball, D. T. Anderson, **P. Wei**, "Challenges and some proposed solutions for handing limited training data when using deep learning in remote sensing," *International Geoscience and Remote Sensing Symposium (IGARSS)*, 2018.
6. T. Reza, L. Cagle, **P. Wei**, J. E. Ball, J. Gafford "Real-time object identification using linear support vector machine and light detection and ranging (LiDAR) 3D data," *in processing*, 2018.
7. L. Dabbiru, **P. Wei**, A. Harsh, J. White, J. E. Ball, J. Aanstoos, P. Donohoe, J. Doyle, S. Jackson, J. Newman, "Runway assessment via remote sensing, " *IEEE Applied Imagery Pattern Recognition Workshop (AIPR)*, pp.1-4, 2015.

PROPOSAL

I contributed to the proposal writing, performed laboratory experiments, and analyzed data to support the following proposal:

- "From the Ground Up: Using Soft Robotic Sensors to Create a Foot and Ankle Wearable that Accurately Captures Real-time, Kinematic and Kinetic Data During Athletic Training", US National Science Foundation (NSF), under review

PRESENTATIONS

- "Fuzzy based Detection Fusion", in *Three Minutes Thesis Presentation (3MT)*, November, 2017.
- "Real-time Object Detection and Position Estimation", in *2017 iREDEFINE (Improving the Diversity of Faculty in Electrical and Computer Engineering) workshop of Electrical and Computer Engineering Department Heads Association (ECEDHA) Annual Conference*, March, 2017.
- "Multi-Sensor Conflict Measurement and Information Fusion", in *SPIE Defense, Security, and Sensing*, April, 2016.
- "Measuring Conflict in a Multi-Source Environment as a Normal Measure", in *IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP)*, December, 2015.

Professional activities and outreach

Reviewer

- IEEE Transactions on Fuzzy Systems (TFS)
- IEEE Transactions on Vehicular Technology (TVT)
- IEEE Access
- Journal of Applied Remote Sensing (JARS)
- IEEE Signal Processing in Medicine and Biology (SPMB) Symposium

Affiliation

- Graduate student member, IEEE Computational Intelligence Society, 2018–present.
- Graduate student member, IEEE Technical Societies, 2015–present.

Outreach Activities

- Judge at Mississippi Region V Science and Engineering Fair (2018).
- Graduate Student Ambassador for Department of Electrical and Computer Engineering (2017–2018).
- Treasurer for Table Tennis Club at Mississippi State University (2017–2018).
- Volunteer at International Fiesta (2017).
- Volunteer for Oktibbeha County Humane Society (2015).