Zichang He

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Education

University of California, Santa Barbara (UCSB), CA, USA — Sep. 2018 – present

Pursing Ph.D. in *Electrical and Computer Engineering*, *GPA*: 3.91/4.0;

Northwestern Polytechnical University (NWPU), Xi'an, China — Sep. 2014 – Jun. 2018

B.Eng. in *Detection, Guidance and Control Technology*

Research Experiences

Uncertainty & Data Analysis Lab at UCSB — Sep. 2018 – present

Graduate Research Assistant, Supervisor: Prof. Zheng Zhang

Research Interests: Uncertainty Quantification (UQ); Tensor/Matrix Computing; Bayesian Inference

- We designed an efficient UQ framework for computer architecture based on mixed-integer programming: speed up 100x than Monte Carlo.
- We proposed a compact tensor regression model for high-dimensional UQ problems.
- We proposed an active learning framework for efficient undersampled MRI reconstruction.
- Current research aims to develop general UQ and tensor techniques, and apply them to various applications including EDA, control systems, MRI, computer architecture and so on.

Intelligent Information Processing Lab at NWPU — Sep. 2015 – Jun. 2018

Undergraduate Research Assistant, Supervisors: Prof. Wen Jiang & Prof. Yong Deng

Research interests: Uncertainty Analysis, Information Fusion, Quantum Decision Theory.

- We proposed evidential and quantum frameworks to model decision making process, which can explain lots of paradoxes in the classical probability theory.
- We proposed lots of effective models to solve information fusion and decision making problems under epistemic uncertainty.

The Hong Kong Polytechnic University — Jul. 2017 – Aug. 2017

Summer Research Intern, Supervisor: Prof. Felix T.S. Chan

Publications [Google Scholar]

- **He, Z.**, Cui, W., Cui C., Sherwood, T. and Zhang, Z., Efficient uncertainty modeling for system design via mixed integer programming, accepted by *International Conf. Computer Aided Design (ICCAD)*, 8 pages, Westminster, CO, Nov. 2019.
- **He, Z.** and Jiang, W., An evidential dynamical model to explain the interference effects of categorization on decision making results, *Knowledge-Based Systems*, 150 (2018): 139-149. (Highly Cited Paper)
- **He, Z.** and Jiang, W., An evidential Markov decision making model, *Information Sciences*, 467 (2018): 357-372.
- **He, Z.** and Jiang, W., A new belief Markov chain model and its application in inventory prediction, *International Journal of Production Research*, 56 (2018): 2800-2817.
- **He, Z.**, Chan, Felix. T.S. and Jiang, W., A quantum framework for modelling subjectivity in multi-attribute group decision making, *Computers & Industrial Engineering*, 124 (2018): 560-572.
- **He, Z.**, Jiang, W. and Chan, Felix. T.S., Evidential supplier selection based on interval data fusion, *International Journal of Fuzzy Systems*, 20 (2018): 1159-1171.
- **He, Z.** and Jiang, W., Quantum mechanical approach to modelling reliability of sensor reports, *IEEE Sensors Letters*, 1 (2017): 1-4.

- Tang, Y., Zhou, D., **He, Z.** and Xu, S., An improved belief entropy-based uncertainty management approach for sensor data fusion, *International Journal of Distributed Sensor Networks*, 13(7) (2017): 1550147717718497.
- Tang, Y., Zhou, D., Xu, S. and **He, Z.**, A weighted belief entropy-based uncertainty measure for multi-sensor data fusion, *Sensors*, 17 (4) (2017): 928.
- Jiang, W., Cao, Y., Yang, L. and **He, Z.**, A Time-Space domain information fusion method for specific emitter identification based on Dempster-Shafer evidence theory, *Sensors* 17 (9) (2017): 1972.

Teaching & Talks

- Conference talk at *ICCAD*, Westminster, CO, USA — Nov. 2019
- Teaching assistant of *ECE 139* (Probability & Statistics), UCSB — Spring 2019
- Conference talk at *8th China Information Fusion Conference*, Xi'an, China — Jul. 2017

Selected Honors & Awards

- The UCSB Graduate Fellowship in Department of ECE — 2018
- The NWPU Special Scholarship of Yajun Wu and Aviation Industry Corporation of China (top 3%) — 2016, 2017
- Meritorious Winner in Interdisciplinary Contest in Modeling (awarded by COMAP) — 2016

Others

Reviewer of journals: *Information Sciences*, *Science Chine: Information Sciences*, etc.
Graduate Courses: Linear Systems, Machine Learning, Optimal Estimation and Detection, Scientific Computing, Game Theory, etc.
Skills: Matlab, Python, C, C++, Mathematica, Keil, LaTex, etc.