Haitang Wang

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Education

May 2017 **Ph.D. in Nuclear Engineering Sciences**, *University of Florida*, Gainesville, FL.
advisor: Professor Andreas Enqvist

May 2017 **M.S. in Computer Engineering**, *University of Florida*, Gainesville, FL.

June 2012 **B.S. in Applied Physics**, *China University of Petroleum*, Dongying & Qingdao, China.
Minor in Nuclear Physics

Major Achievements

1. 1^{st} place of American Nuclear Society Graduate Student Design Competition, 2013
2. Recipient of ACM TAPIA Conference Scholarship, 2016
3. Outstanding Graduate Student of Shandong Province of Class 2012
4. Best Senior Design of China University of Petroleum of Class 2012
5. First Class Scholarship of China University of Petroleum, 2011
6. National Scholarship for Encouragement, 2010 (top 2%)
7. Scholarship of Student Leadership in China University of Petroleum, 2009 - 2011
8. Undergraduate research grant from National College Students' Innovational Technology Program, 2010 - 2011
9. Three-year full scholarships in Yucai Private High School (top 1%)

Skills

Languages: Proficient in C++, Matlab, Python, SQL, Mathematica
Familiar with C, Java, R, Scanning Electron Microscope, Raman Microscope

Quantitative: Statistics, Linear Regression, Monte Carlo Simulation, Differential & Integral Calculus, Mathematical Physics

Course link: It covers implemented core courses in Math, Physics, Electronics and Computer Engineering: **https://www.wanghaitangufl.com/quantitative-courses**

Experience

2013 - now **Graduate Research Assistant**, *University of Florida*, Gainesville, FL.

Research Associate, *Consortium for Verification Technology*.

1. Major contributor to the development of analytical models of liquid deuterated detectors for fast neutron detection and the development of particle recognition algorithms considering elastic scattering process. The model allows us to predict the response of non-commercial detectors and save money on early stage of developing new materials.
2. Developer of the Monte Carlo photon tracking system for deuterated scintillation detectors, EJ-315.
3. Major contributor to the development of coincidence trigger algorithm in particle detection which dramatically screens gamma rays out and saves the disk space for waveform storage.
4. Major contributor to the large measurement campaigns carried out at Athens, Ohio both in 2014 and 2016.

2009 - 12 **Undergraduate Research Assistant**, *China University of Petroleum*, Qingdao, China.

1. Led a student research project funded by National College Students' Innovational Technology Program to carry out a study of the measurement of the electric conductivity of oil.
2. Implemented numerical calculations of statistical properties of Fermi system under conditions of strong magnetic effect and Fermi gases interactions.

Selected Projects

Spring 2017 **Programming language compiler**.

The semester-long project was implemented in Java, including a parser following a context-free grammar, a syntax tree, a symbol table and generation of bytecode using Java Virtual Machine.

Fall 2016 **Internet of Things in Xinu**.

We have integrated multiple analog sensors to a Beagle Bone Black board. Java websocket was used as the communication protocol between the edge and cloud server. Digital inputs from sensors were transferred through GPIO pins. Multiple devices like temperature sensors and BBB were mapped in DDL files. Data in/out communication was interrupt-driven. Additionally, the website support to display the current status of the sensor and also control the sensor. The project was implemented in C and Java. .

Spring 2016 **Data-driven E-commerce trading platform**.

Tables of products, users and trading histories and searching functions were implemented in SQL. Individual web pages were lunched for different type of users with C#. Trading performance was analyzed and shown on websites. Over 10,000 items were implemented.

Fall 2015 **Micro-structure characterization**.

Applied filtering, rendering, boundary detection, and minimal connected component identification to electron scanned microscope graphs to quantitatively represent distributions of grain size of welding metals based on a linear interception method and grain surface area. The image included 3200 connected components.

Summer 2014 **Sensor network deployment**.

"Lightweight secure low energy adaptive clustering hierarchy (LS-LEACH): a new secure and energy efficient routing protocol for wireless sensor network". We have created and simulated a wireless sensor network. LEACH and LS-LEACH protocols were implemented and their energy efficiencies were compared. The project was composed of a proposal, a progress report, two presentations and a demo.

Fall 2013 **Micro-structure characterization**.

"Single channel numerical analysis for boiling water reactor and pressurized water reactor". We have considered maximum fuel temperature, maximum cladding temperature, minimum critical heat flux ratio, and applicable range of parameters including the mass flow rates and maximum linear heat transfer. The project was composed of a 40-page technical report and a code package.

Workshops & Seminars

1. CAEN Workshop, University of Michigan, MI, 2016
2. Florida Energy Summit, Jacksonville, FL, 2015
3. INMM 30th Fuel Seminar, Washington D.C., 2015
4. Safeguard Training, Oak Ridge National Laboratory, TN, 2014

Publications & Conference Proceedings

1. H.T. Wang, D. Carter, T.N. Massey, A. Enqvist, Neutron light output function and resolution investigation of deuterated organic liquid scintillators, *Radiation Measurements*. 2016. 89: 99

2. A. Enqvist, H.T. Wang, K. Stadnikia, R. Kelley, J. Jordan, New pulse shape discrimination algorithms for application on digitized scintillation pulses, *IEEE Nuclear Science Symposium & Medical Imaging Conference*, Strasbourg, France, 2016

3. Y. Gao, H.T. Wang, J.E. Baciak, A. Enqvist, Shielding analysis of TN-32 spent fuel dry cask with SCALE. *American Nuclear Society*, Las Vegas, NV, 2016

4. H.T. Wang, J. Wyers, Y. Gao, C. Greulick, J. Tulenko, J. Baciak, A. Enqvist, Evaluation of Spent Fuel Cask Condition using Emission Source Tomography: Radiation Evaluation. *ACM TAPIA*, Austin TX, 2016

5. H.T. Wang, A. Enqvist, Pulse height models for deuterated scintillation detectors. *Nucl. Instr. Meth. A* 2015. 804: 167

6. H.T. Wang, J. Wyers, Y. Gao, C. Greulick, J. Tulenko, J. Baciak, A. Enqvist, Evaluation of Spent Fuel Cask Condition using Emission Source Tomography. *Institute of Nuclear Material Management*, Atlanta, GA, 2016

7. R. Weinmann-Smith, A. Enqvist, H.T. Wang, T. Harvey, et al., Characterization of a Tin Based Viscous Gel Scintillation Detector for Spectroscopic Gamma-Ray Measurements, *Institute of Nuclear Material Management*, Atlanta, GA, 2016

8. H.T. Wang, L. Rolison, K. Jordan, A. Enqvist, Feasibility exploration of Carbon-11 production by bombarding mixtures of ^{32}S and ^{11}B power with fast neutrons. *20th Pacific Basin Nuclear Conference*, Beijing, 2016 (Paper accepted and I was offered to be the Student Section Chair)

9. Cartas, H.T. Wang, G. Subhash, R. Baney, J. Tulenko. Processing UO_2-CNT ceramic matrix composites utilizing Spark Plasma Sintering. *Nucl. Sci. Technol.* 2015. 189: 258

10. H.T. Wang, A. Enqvist, Analysis on fast neuron pulses generated by a deuterated organic scintillator EJ-315. *Institute of Nuclear Material Management*, Indian Wells, CA, 2015

11. H.T. Wang, A. Enqvist, Model calculation of deuterated organic scintillator. *Institute of Nuclear Material Management*, Atlanta, GA, 2015

12. Cartas, H.T. Wang, Distribution and thermal properties of UO_2-CNT ceramic matrix composites fabricated by Spark Plasma Sintering. *Transactions of American Nuclear Society* 2013. 109

13. D. Permar, A. Cartas, H.T. Wang, Innovative accident tolerant UO_2 composite fuel for use in LWRs. *Transactions of American Nuclear Society* 2013. 109

14. H.T. Wang, F.D. Men, X.L. Chen. Relativistic thermodynamic properties of interacting Fermi gas in a strong magnetic field. *J. At. Mol. Sci.* 2014. 5: 33

15. H.T. Wang, F.D. Men, X.G. He, M.Q. Wei. The stability of a non-extensive relativistic Fermi system. *Chinese Physics B* 2012. 21: 060501

16. H.T. Wang, F.D. Men, X.G. He, M.Q. Wei. The non-extensive relativistic statistical properties of Fermi system. *Journal of Sichuan University* 2012. 3: 61 (in Chinese).