



SHUONAN (Shannon) DONG

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EDUCATION

Ph.D. Candidate. Massachusetts Institute of Technology, Aeronautics and Astronautics, 2010. Model-based Embedded & Robotic Systems group. Advisor: Brian Williams. GPA: 5.0/5.0.

M.S. Massachusetts Institute of Technology, Aeronautics and Astronautics, Sept. 2007. Advisor: Brian Williams. Thesis title: *Unsupervised Learning and Recognition of Physical Activity Plans*. GPA: 4.8/5.0.

B.S. Massachusetts Institute of Technology, Aeronautics and Astronautics. June 2005. GPA: 4.7/5.0.

EXPERIENCE

NASA Jet Propulsion Laboratory

Pasadena, CA

Sept. 07 – Present. Affiliate. Involved in research and development effort to design new sequence modeling language for interfacing with Seqgen and model checkers such as UPPAAL and SPIN.

MIT Model-based Embedded & Robotic Systems group

Cambridge, CA

Sept. 05 – Present. Research Assistant. Developed innovative capability for computational agents to recognize human motion intent, given motion capture data. Algorithm applied unsupervised expectation-maximization to statistically learn a human's plan, expressed as a non-stationary hidden semi-Markov model, and then used Viterbi algorithm to perform online recognition on new motions. Algorithms implemented in MATLAB.

Monterey Bay Aquarium Research Institute

Moss Landing, CA

Jun. 06 – Sept. 06. Intern. Applied model-based fault monitoring and diagnosis concepts to autonomous underwater vehicles.

The Boeing Company

Seattle, WA

Jun. 05 – Aug. 05. Intern. Materials and structures post-production analysis of 727 and 757 aircraft fuselages.

MIT Conceive, Design, Implement, Operate Program

Cambridge, MA

Feb. 04 – Jun. 05. Interface docking port electronics lead for the Self-assembling Wireless Autonomous Reconfigurable Modules project targeting human-assistant small satellites. Hardware design and development.

NASA Kennedy Space Center

Cape Canaveral, FL

Jan. 05. Operational Intern. Analyzed how engineering designs affect operations in areas of International Space Station payloads, Space Shuttle vehicle assembly, and Expendable Launch Vehicle development.

NASA Ames Astrobiology Academy

Moffett Field, CA

Jun. 04 – Aug. 04. Research Associate. Created a simulation testbed for robotic exploration of a Martian surface using physically based modeling techniques. Computer software development used Visual C++ in conjunction with Arachi physics engine to simulate rovers on various terrains.

NASA Glenn Research Center

Cleveland, OH

Jun. 03 – Aug. 03, Jan. 04. Intern. Worked on battery modeling for the International Space Station, developing new model for battery let-down. Analysis involved considering battery behavior, calculating stochastic life distributions, and modeling extended battery discharge behavior in FORTRAN.

SELECTED PUBLICATIONS

S. Dong et al. "Self-assembling Wireless Autonomous Reconfigurable Modules Concept." *Acta Astronautica*, 62(2-3):246-256, 2008.

M. Blessing and S. Dong. "Physically Based Modeling Simulation Testbed for Robotic Exploration of a Martian Surface." AIAA-2005-2775. *1st Space Exploration Conference: Continuing the Voyage of Discovery*. Orlando FL. Jan., 2004.

S. Dong and A. Delleur. "International Space Station Nickel-Hydrogen Battery." AIAA-2004-5656. *International Energy Conversion Engineering Conference*. Providence RI. Aug., 2004

SKILLS

Computer tools: MATLAB & Simulink, LaTeX, UPPAAL, SolidWorks, StudioMax 3D, MySQL/PHP.
Programming, proficient: MATLAB, Scheme (Lisp), C/C++; **adequate:** Java, Ada95, FORTRAN.
Machine/hardware tools: Lathe, mill, waterjet, drill press; soldiering iron, etc.
Languages: Fluent in Mandarin, conversant in French.

AWARDS

NDSEG Graduate Fellowship, NSF Graduate Fellowship, AIAA Foundation Scholarship, USRA Scholarship, Dean's List.

ACTIVITIES

MIT Zero-Gravity team, TBII Engineering Honor Society officer, MIT Mars Society president, Principles of Autonomy TA, Unified Engineering TA, ΣΓΤ Aerospace Honor Society, AIAA, SEDS.