

Amelia Earhart Fellowship Program

A Zonta International program, funded by the Zonta International Foundation

The Zonta International Amelia Earhart Fellowships were established in 1938 in honor of Amelia Earhart, famed pilot and member of the Zonta Clubs of Boston and New York. The Fellowships are made annually to women pursuing graduate Ph.D./doctoral degrees in aerospace-related sciences and engineering.

2006 Fellows

YAN JI

Citizenship: P.R. China

Proposed Program: Mechanical and Aerospace Engineering at the University of Florida



Ms. Ji is working towards her Ph.D. degree in the “Microgravity and Micro system Heat Transfer” lab at the University of Florida. Her research focuses on the study of Cryogenic Two Phase Flow under microgravity conditions, which is important to understand to be able to achieve longer space journeys. A key point to the use of cryogenic fluids is to keep them from boiling as much as possible. She is investigating the use of a Thermal Vent System to vent a little portion of the cryogenic fluid to cool the rest down. Ms. Ji is also optimizing the design of a Micro-Solid Oxide Fuel Cell for Space Auxiliary Power Systems with an aim to provide a compact cell with high power density. She would like to apply her research work to a space program. In her spare time she volunteers at St. Francis House.

I was born on a small city in the northern of China. My father is an engineer and likes to invent or assemble some electronic applications, such as wireless radio. He even bought many parts and assembled the first TV for our family! When I was a child, he started to teach me some basic physical or mathematical knowledge. From then on, I have taken a liking to reading scientific books in which I found a fascinating world full of mystery and wonders. I wished I could become a scientist one day. Science was, and still is, my passion.

I began my Ph.D study and joined in “Microgravity & Micro system Heat Transfer” lab under the direction of Dr. J. N. Chung on summer, 2004. From then on, my efforts have been primarily put into two projects: “Experimental Study of Cryogenic Two-Phase Flow under Microgravity conditions” and “Modeling for Micro-Solid Oxide Fuel Cell (SOFC) in Space Auxiliary Power System”.

My husband just got his Ph.D degree from this department this August. We always discuss and exchange some ideas on researches. On our spare time, we like to go fishing, collecting stamps, swimming and traveling. When I was in China, I like riding horse very much. So in the further, I wish that I could have a farm and several horses.

LESLIE ELISE LAMBERSON

Citizenship: USA

Proposed Program: Aerospace Engineering at Georgia Institute of Technology

Ms. Lamberson will use her second Amelia Earhart Fellowship to continue her work on optimizing the structural durability of the metallic thermal protection system materials used on space vehicles and aircraft. Her research focuses on the fracture toughness and fatigue behavior of aluminum and titanium sheets by analyzing the paths cracks in aluminium-based metallic thermal protection systems (TPS) materials. Ms. Lamberson's work combines experimental, numerical and analytical techniques. If successfully developed for aircraft and space vehicles, these metallic thermal protection systems could enhance safety and provide significant savings in fuel costs. After earning her Ph.D. she hopes to become a professor to encourage the next generation of aerospace engineers to challenge the limits of flight. One of her greatest passions is dance. She is an instructor at the Atlanta Ballet's Centre for Dance.

LEIHONG LI

Citizenship: P.R. China

Proposed Program: Aerospace Engineering and Structure Analysis at Georgia Institute of Technology



Ms. Li will use her second Amelia Earhart Fellowship for researching ways to improve the structural design of helicopter blades in order to reduce helicopter vibration and improve their hover and cruise performance and aero elastic stability. Ms. Li developed a two-level method using a one-dimension-beam model to deal with global factors such as vibration and aero elastic stability. In a second layer properties of a series of cross sections as for example the stiffness matrix or minimum weight are dealt by the so called "Asymptotical Beam Sectional Analysis (VABS)". This two layer approach helps to shorten the design cycle of blades without losing accuracy of blade geometrical information. Ms. Li intends to complete her study under her second fellowship. She plans to devote her creativity to rotorcraft industry to reduce the accidents and design more powerful and functional rotorcrafts. I love international style standard and Latin dance. I not only enjoy the fantastic performance, but also experience the elegant dances in ballroom dance club every week. Listening to the pleasant melodies and practicing the elegant dances are the best way to relax myself. Photography is also one of my favorite hobbies. I hope to record the beautiful scenes and eventful moments of my life through my camera. I play Taiji as one of my favorite exercises. I also like to cook delicious food at home.

HAIYING LIU

Citizenship: P.R. China

Proposed Program: Aerospace Engineering at Georgia Institute of Technology

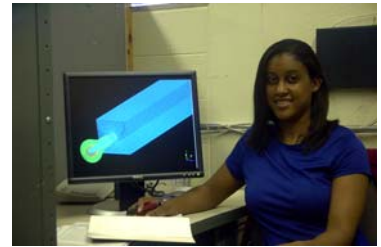


Ms. Liu is researching the Finite Element modeling of rotorcraft. She has developed a physics based methodology for modeling of hydraulic devices within multi-body based comprehensive models of rotorcraft systems. Her work will also involve development of a fluid structure interface for rotorcraft aeromechanic computations, with an aim to promote standardization for rotorcraft computations. Her program also involves coding algorithms to improve the trim procedure in a Finite Element Code. She is a member of the American Helicopter Society.

YOLANDA TIKITIA MACK

Citizenship: USA

Proposed Program: Aerospace Engineering at the University of Florida

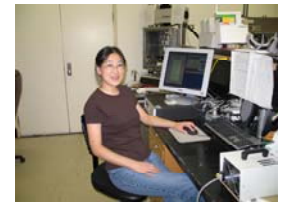


Ms. Mack is working on the design of critical liquid rocket engine components as part of a program to design a simpler and more reliable engine to replace the NASA Space Shuttle Main Engine, which has proved expensive to maintain and has encountered difficulties in interactions between engine components. She is using Computational Fluid Dynamics tools and optimization tools to investigate the performance of an expander rocket engine cycle. Upon receiving her Ph.D. degree, Ms. Mack plans to enter industry and play an integral part in developing technologies for high performance engines. She is active in many student professional associations on campus.

HUIMIN SONG

Citizenship: P.R. China

Proposed Program: Aerospace Engineering at Georgia Institute of Technology



Ms. Song's Ph.D. research deals with the shear behavior of composite sandwich materials under monotonic and fatigue loading. These materials have applications in aerospace, automotive and marine structures. Her focus is on the influence of stress concentration on the shear fatigue life of sandwich composites under a pure shear stress state. She will develop a new experimental method to provide a uniform shear stress distribution in a specimen, which other current test methods fail to achieve. The results of her research will enable aerospace engineers to get an accurate understanding of how damage initiates and develops during fatigue shear loading. Ms. Song enjoys mentoring young students and has recently participated in the NASA Summer High School Apprenticeship Research Program as a mentor.

YOKO WATANABE

Citizenship: Japan

Proposed Program: Aerospace Engineering and Controls at Georgia Institute of Technology

Ms. Watanabe believes Unmanned Aerial Vehicles (UAVs) will continue to play an increasingly important role in the aerospace industry. Her research is focused on the area of active vision control systems for unmanned aerial vehicles, specifically the use of two-dimensional vision sensors to detect obstacles and assist vehicle guidance. Unmanned aerial vehicles can be used to track topology and monitor situations where it is dangerous for humans to fly, and so require a system that can obtain the terrain map while simultaneously using the map to guide the vehicle around obstacles. Ms. Watanabe hopes her research will allow the UAVs to perform high level tasks in unknown areas with simple equipment. She used her first Amelia Earhart Fellowship to present her research achievements at different conferences. After completing her Ph.D. degree she would like to continue her research in the aerospace industry or in a research institute after graduation. She is a certified private pilot of a single engine land and high-class glider.