

JUN LIU: THE EMBODIMENT OF ACADEMIC DRIVE, READY TO MAKE HER MARK

Jun Liu is among the young members of ASHS who is situating herself to keep the reputation of our organization solid and admirable. Her academic quest has been decorated with accolades. And as she readies herself to deliver a personal impact upon her chosen field, she exhibits an unmistakable promise of fantastic things to come.

Jun Liu was born and raised in Baoding City in the Hebei Province of China. It's an impressive city with a rich history. Baoding is one of 13 cities in China with a population of more than 10 million people. A city of cultural significance throughout the times of several ruling dynasties, Baoding was destroyed by the Mongols and then rebuilt itself in the 13th century.

In recent years, Baoding has been rebuilding itself anew, redefining itself into a stellar destination for new development, focusing its growth on high-mindedness. Blossoming into a true center of innovation, this grand city is intent on leading its country (if not the world) into preferable realms of sustainability and quality of life.

It is out of this environment that Jun Liu has sprung, an environment where high-mindedness is prized.

That is certainly a perspective espoused within Jun's childhood home. Her father came from a small and very poor village. He experienced an unfortunate reality but could envision a better life. He saw that hard work was the key to his own achievement. So he worked hard to free himself from an undesirable beginning and migrated to Baoding where he became a successful doctor. Jun's mother was a strategic thinker. She always tried her best to maneuver Jun into optimal educational opportunities and to instill in her a strong sense of ambition.

During her middle school and high school educational life, Jun liked physics. She was drawn to its understandable language and consistent laws. Although studying physics is not easy, it made sense. Its elegant rules seemed to apply to every aspect of daily life. And she admired engineers. To her, they employed simple, basic rules to create delicate, functional machinery. That is where her brain was geared. She used guidelines found in those areas of fascination to apply to all areas of study, a practice of logical atomism she could tap into for biology, language, math, and anything else. Even the arts. In doing so, she excelled.

When it came time for her to apply for acceptance into a university, she did very well with her country's standardized admission testing, scoring in the top 4% of the 503 thousand students who took the test in her province that year. As a result, Jun was invited to fill a coveted spot in the Horticulture Department of Nanjing Agricultural University.

Her massive home community had an active agricultural component. But Jun's life had little to do with that. She was a city girl. In a very big city. However, growing up in a dense population larger than many entire countries, possessing a basic understanding of the importance of agriculture is inescapable. Jun had taken that to heart. And she already knew that she wanted her pursuits to be meaningful.

In her early studies, Jun strove to understand “plant logic” to crack the program in a plant’s genome that codes its behavior. For her undergraduate thesis, she earned her way into a lab that works with vegetable crops in the *Umbelliferae* family. She examined how celery plants responded under mechanical stress, and she engaged the intricate process of gene extraction with aplomb.

Jun’s academic advisor and several of her professors illustrated that, for a student of her level of understanding and drive, studying abroad would prove beneficial. So she set her sights on America.

Jun applied to The University of Georgia and was eagerly accepted. She landed in Atlanta and discovered that her laboratory and studies would be in the nearby town of Griffin, Georgia, where UGA maintains a branch campus, about a 45-minute drive from Atlanta. This could have served as an awkward adjustment for some in Jun’s shoes. The town of Griffin has a population of just over 23 thousand. It lacked the hustle and bustle of her familiar turf containing more than 12 million people. But she found it refreshing.

Since she had moved to Georgia, she studied peaches. I mean, come on! Georgia! Specifically, she researched cold hardiness of peach plants, and due to this line of inquiry, she spent considerable time in orchards: picking peaches, planting trees, preparing samples, taking measurements, and eating some of the research material.

At the end of her masters program, Jun decided that she wanted to remain at The University of Georgia to pursue her doctorate. Though not the exclusive reason for her decision, there was something to be said for small town living. Her time in Griffin has been among the happiest in her life. She chose to study plant physiology. It was perhaps an extension of the brain-gearing motif that helped make her earlier educational path so successful. A deeper understanding of plant physiology will certainly unveil to her the order that she has traditionally sought academically. She will broaden her expertise in ‘plant logic’.

Currently, Jun is focused on the effect of light quality on plant photosynthesis and plant growth and development. Her research will hopefully enlighten (pun intended) growers about how to effectively reduce the cost of commonly used supplemental LED lighting while increasing crop yield and quality.

There is a common misperception that plants can’t use green light for photosynthesis, or at least not effectively. Jun’s research has shown that this is not true. Green light can be very useful, especially at high light intensities. She has also shown that far-red light has the great potential to speed up crop growth in vertical farms. This is the type of finding that could change the game for, among other things, urban agriculture and year-round crop production.

Jun Liu was a winner of the PP Systems 2019 Innovator’s Travel Award which she claimed due to her post-graduate work involving leaf gas exchanges and chlorophyll fluorescence research that included the use of the CIRAS-3 Portable Photosynthesis System.

PP Systems has been considered a world leader in the design and manufacture of instrumentation for the measurement of photosynthesis, soil respiration, chlorophyll fluorescence, CO₂/H₂O gas analysis, and vegetation reflectance since it was originally set up in 1984. And beyond developing innovative instrumentation to be used in agronomy, horticulture, biology, botany, crop and soil science, forestry, ecology, meteorology, oceanography, and plant physiology, PP Systems is constantly availing itself to assist the development of the budding and innovative scientists who will utilize their wares. Jun caught their eye.

Jun Liu effectively used her winning of the PP Systems Travel Award to participate in the ASHS 2019 Conference in Las Vegas. It was an experience that she found most enriching: <https://youtu.be/sep-QBjXQFQ>.

Jun has been a member of ASHS since 2015 and is proving to be an exciting member to watch. Her research presentations have been nothing shy of astute, allowing us to become front-row observers of her rise to true achievement and giving us windows of insight into the beneficial impact she is gearing up to bestow upon the field of horticulture sciences.

Also, Jun is pleased to be a part of ASHS. She openly declares her admiration for our organization as a platform for a free exchange of scientific ideas and ideals. She notes that the sharing of so much cherished information among respected, high-minded scientists contributes to advancements across so many disciplines within our collective expertise, and that is profoundly remarkable. For example, at our annual conferences, Jun has been able to share the results of her ongoing research with people from all across the world, and she has been able to learn from their successes from similar experimentation. Doing so is an uncommon and satisfying perk.

Dr. Marc van Iersel, Jun's doctoral advisor, declares that the future is bright for Jun Liu. According to Dr. van Iersel, she is a star student. But she is also very giving and kind to her fellow students. Not only is she unusually intelligent and driven, he notes that Jun is extremely capable of working independently and that she is always accommodating when needed to help others, not simply in teaching them new research techniques, but also with the simple and boring busy work that is a natural part of any research project.

Jun intends on applying her growing knowledge and findings to the real world in a way that will help growers, to reduce the cost of farming while keeping produce quality high, thereby increasing the profit margin for the many people who work hard everyday to ensure that we all have what we need to eat. It's a great goal.

And Jun's mind never strays far from divining the order of things. She has kept an interest in plant physiology and hopes to apply her many strengths toward a deeper understanding of why and how plants guide themselves through the seemingly chaotic process of natural selection.

It's difficult to discern precisely how Jun Liu will dedicate her coming years, but judging from the environment from which she rose (her innovation-appreciative home city and her hard-work-inspired parentage) and from her driven desire to serve the betterment of mankind, all of us will be glad she did.