

Bio

Ting-Ying Wu, Ph.D.

Throughout my academic journey, I have been driven by deep curiosity and a desire to uncover new knowledge in the field of plant-environment interactions, with the ultimate goal of solving real-world problems. Following this motivation, I secured a 3-year, fully funded PhD position at ETH, Zurich and finished the 5-year postdoctoral training at Temasek Life Science Laboratory, Singapore. My work has revealed conserved and divergent gene regulatory network (GRN) features, shedding light on the evolution of GRNs in dynamic environments. I developed a novel data-collection pipeline that combines OMICs and mathematical modelling, recognized as a ground-breaking methodology in plant research. My approach has fostered collaborations between experimental and computational biologists, resulting in publications in leading plant science journals. Currently, my laboratory's research is focusing on the evolutionary conservation and divergence of gene regulatory and signalling networks in dynamic environments, particularly in response to heat and drought stress. Our aim is to understand how biological networks can adapt and evolve in the face of genetic and environmental changes across all levels. To achieve this, we employ techniques ranging from big-data mining to predictive modelling, and from genomics to proteomics to construct these networks. I am well-equipped to move forward with the overarching goal of bridging systems biology and predictive modelling in formulating a quantitative of biological networks in fundamental biology and in agriculture. In pursuing this path, I am committed to finding possible solutions for those real-world challenges within the field of plant science.