學海築夢/新南向學海築夢學生出國實習

獲補助年度	114 年度
薦送學校、系所、年級	國立台灣大學電機工程學系四年級
中文姓名	李宛頤
國外實習國家(含城市)	美國德州休士頓
國外實習機構	萊斯大學, Rice University
國外實習考評成績或評語	完成海報報告的證書 

Program Overview: The Rice MACHI Internship

The Rice MACHI program is a specialized internship designed for female STEM students, blending rigorous research training with meaningful cultural exchange. The cohort consisted of ten students from Taiwan and ten from Japan, representing a diverse array of scientific and engineering disciplines. A cornerstone of the program's cultural component was the housing arrangement, where each Taiwanese student was paired with a Japanese roommate, fostering deep cross-cultural dialogue. Academically, participants were integrated into specific research laboratories under the guidance of a faculty mentor. The program culminated in a formal poster presentation, allowing students to showcase their research progress and findings.

Institutional Context and Lab Placement

Rice University utilizes a selection process that aligns students' academic backgrounds and research interests with specific laboratories. Given my major in Electrical Engineering and previous experience in integrated circuit (IC) design, I was placed in the Secure and Intelligent Micro-Systems (SIMS) Lab within the Department of Electrical and Computer Engineering. The SIMS Lab is at the forefront of innovative IC design, with a particular focus on biomedical devices, in-memory computing, and hardware security.

Research Experience and Professional Growth

During the internship, my research focused on a critical component of an in-memory computing system: a closed-loop configuration amplifier. I was mentored by a PhD candidate who, coincidentally, is an alumnus of National Taiwan University. This project proved to be intellectually demanding, as it represented a primary exploratory attempt for the lab in this specific area.

Working as the sole researcher on this component required a high degree of autonomy. While I often had to troubleshoot technical hurdles independently, this challenge taught me how to effectively manage a research timeline and seek out diverse resources to overcome obstacles. My typical daily schedule involved lab work from 10 AM to 6 PM, primarily focusing on simulations—a workflow that allowed me the flexibility to continue my analysis back at my accommodation when necessary.

Cultural Immersion and Life in Houston

Beyond the academic sphere, the program provided numerous opportunities to explore the unique culture of Houston. Highlights included a visit to NASA's Johnson Space Center, where I explored advancements in physics and astronomy, and the Houston Livestock Show and Rodeo, which offered a fascinating glimpse into Texan agricultural traditions. Additionally, the Taiwan Graduate

Student Association hosted a Lunar New Year celebration, which provided a welcoming sense of community.

The living environment around Rice University was exceptionally pleasant. The mild February weather made walking to campus enjoyable, though I also utilized the university's free shuttle service. I took advantage of the proximity to Houston's Museum District, where student identification provides free access to world-class institutions. For daily needs, the local bus system made grocery shopping convenient. Regarding dining, the university meal plan offered an all-you-can-eat format at the campus serveries; while the menu leaned toward American cuisine, the daily availability of Asian options like congee and noodles provided a comforting variety.

Conclusion and Personal Reflection

The most significant takeaway from the MACHI program was the development of my independence and problem-solving skills. This internship marked my first experience traveling and living alone in a distant country, requiring me to navigate the complexities of daily life—from cooking and commuting to managing personal logistics.

Professionally, I learned to drive my own research progress in the absence of rigid deadlines, a skill that is essential for graduate-level studies. While navigating consecutive challenges was demanding, the process of resolving them gave me the courage to step outside my comfort zone. I am deeply grateful for the opportunity to experience American culture in Houston, contribute to the SIMS Lab, and grow both as an engineer and an individual.

Photos

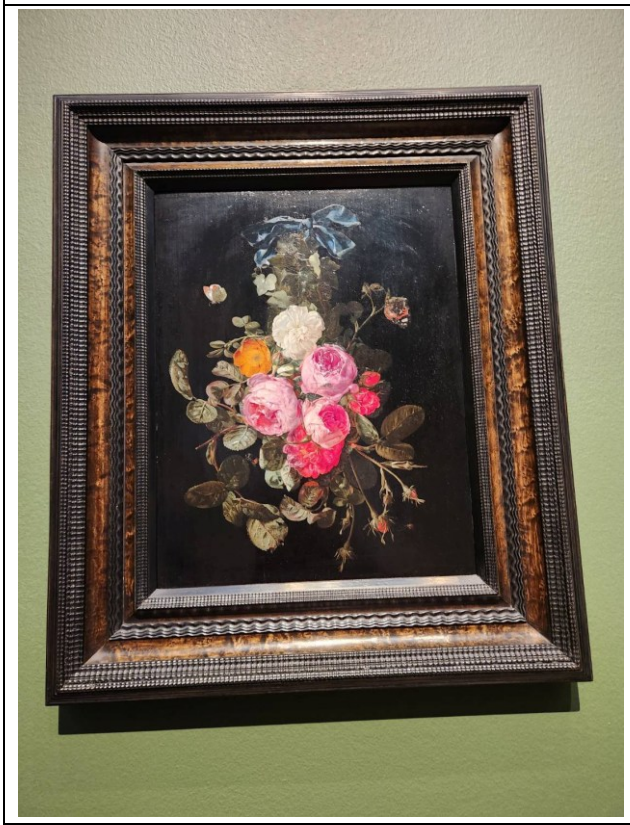
Fig1. Building of my office	Fig2. Window view outside the lab
	
Fig3. Museum of fine arts-1	Fig4. Museum of fine arts-2
	

Fig5. Food at servery-1	Fig6. Food at servery-2
	
Fig7. Trip to NASA-1	Fig8. Trip to NASA-2
	
Fig9. Rice logo	Fig10. Poster presentation of all participants