

# Tzu-Chun Huang

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## SKILLS

**Technical Skills:** Analytical Chemistry, Quality Control (SPC), Machine Learning, Python, Lynx, Chromatography, Octave, Microsoft Office.

**Soft Skills:** Problem-Solving, Adaptability, Quick Learning, Cross-functional Collaboration.

**Language:** Mandarin, English.

## EDUCATION

### University of Washington

Seattle, WA

*Master of Science in Applied Chemical Science and Technology*

December 2023

GPA: 3.53/4.0

### National Sun Yat-sen University

Kaohsiung, Taiwan

*Bachelor of Science in Chemistry*

June 2021

## WORK EXPERIENCE

### Precision Analytical

Mcminnville, OR

#### Chemist

November 2024

- Quantified creatinine using UV-Vis spectroscopy to normalize urine concentration and performed replicate measurements for routine quality control. Used reference samples and **statistical control limits** (conceptually similar to SPC) to monitor variation and identify abnormal results, supporting efficient and consistent sample processing workflows.
- Applied **Six Sigma** methodology to investigate significant deviation in patient urine creatinine measurements; analyzed potential causes including sample handling, reagent preparation, and laboratory environment, identified elevated temperature as the primary factor affecting reaction kinetics, implemented SOP improvements to standardize temperature equilibration prior to UV-Vis analysis, and restored consistent measurement performance.
- Operated the Lynx automated liquid dispensing system and C18 column-based extraction process for high-throughput hormone analysis (androgen, estrogen, progesterone), strictly adhering to **SOPs** to ensure process repeatability and data consistency across urine and saliva samples.
- Performed methanol recycling to reduce chemical waste and operational costs.

## COURSEWORK PROJECTS

### Defect Identification and Classification Using YOLOv5 and Azure Machine Learning

- Trained a **defect detection and multiclass classification model** using MoS<sub>2</sub> images, applying image preprocessing techniques to enhance defect visibility and reduce noise.
- Verified detected defects using intensity profile analysis and manual cross-checking to ensure practical validity.
- Evaluated model performance using precision and recall metrics to assess detection reliability.
- Awarded **1st place** in a hackathon for technical execution.

### Design Project: Quorum Sensing Behavior Observation

- Designed a microfluidic device to test the hypothesis that quorum sensing behavior can be observed in small populations when confined within limited volumes.

### Machine Learning with Materials Project Database

- Utilizing machine learning techniques to predict crystalline structures based on key chemical properties.