

# *Interview Presentation*

Presented by Kai-Ting Tung



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&Part-time Work  
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# About Me

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- Kai-Ting Tung
- M.S. in Mechanical Engineering (Design Division), National Taiwan University (expected Jul. 2025)
- Born in Yilan, passionate about science and hands-on creation since junior high
- Top 1% in physics throughout high school
- Winner of 1st place (national) and 2nd place (international) in the Intelligent Ironman Creativity Contest
- Outgoing, detail-oriented, and committed to excellence





# *Academic Background &Part-time Work Experience*

## COLLEGE

Department of Mechanical Engineering	2018 Sep. - 2019 Jun.
Department of Electrical Engineering	- 2020 Jun.
Department of Mechanical Engineering	- 2022 Jun.

## GRADUATE SCHOOL

Department of Mechanical Engineering, Design Division National Taiwan University	2022 Sep. - Now
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## PART-TIME WORK EXPERIENCE

### Senior High School Physics

- College entrance & GSAT prep: 3 students (6 mos–1 yr)
- 1st–2nd year physics: 3 students (1 yr each)

### Senior High School Math

- 1st year: 1 student (1 yr)

### Junior High School Science & Math

Science: 2 students (1 yr each, incl. small-group cram school)

- Math: 1 student (small-group cram school, 1 yr)

### Elementary Math

- 1 student (6th grade, small-group cram school, 1 yr)

# *Notable Experience – Junior Year Tokyo Electron Robotics Competition*

## RECOGNITION AS A NATIONAL FINALIST

### Robotics Competition Project

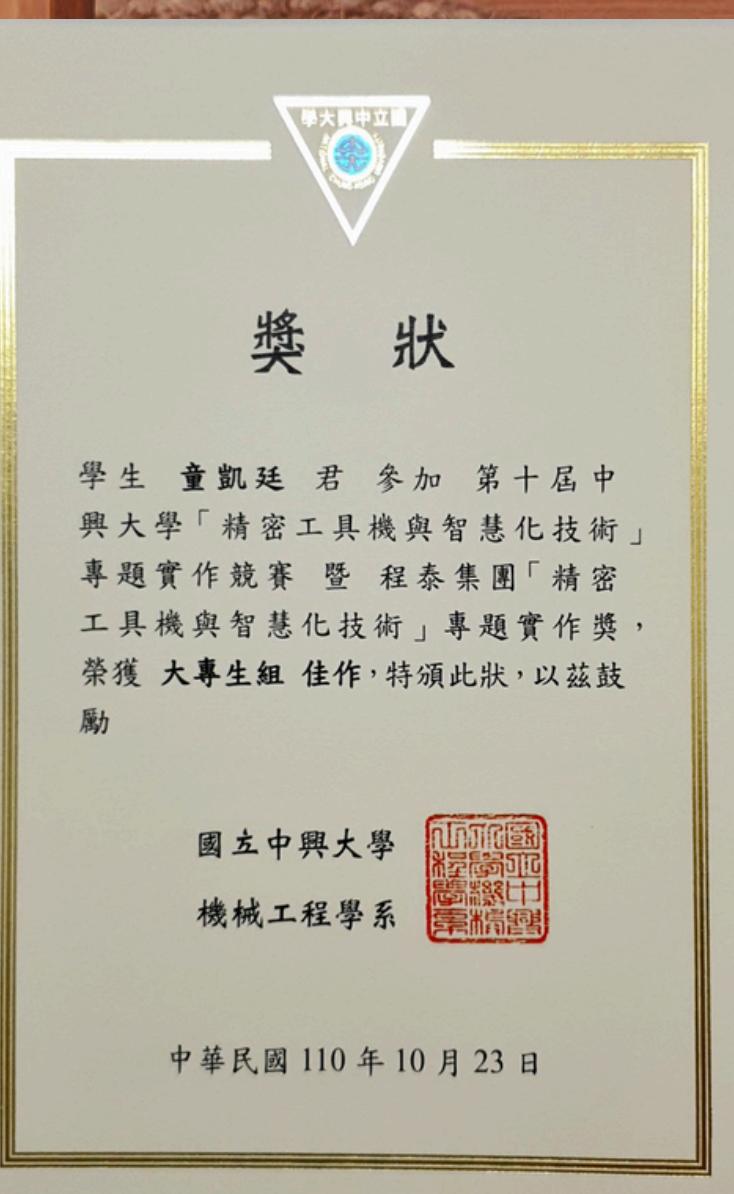
- Designed a robot capable of image recognition, obstacle avoidance, object grasping, and autonomous task execution
- Involved mechanical design, motor control, computer vision, and embedded system development
- Strengthened skills in hands-on engineering and cross-disciplinary system integration



# *Notable Experience – Senior Year Capstone Project: Transformable Wheeled-Tracked Vehicle*

## INNOVATION AND RECOGNITION

- Dual-mode mobility: wheels + tracks for complex terrain
- Led over 70% of design & fabrication:
  - Self-locking transformation mechanism
  - Shifting gear
  - Track-wheel drive, switching module
  - Gear design, linkage system, structural analysis
- 3rd Place, Chen Tai Precision Machine Tool Contest (University Division)
- Potential applications: robotics, military transport, warehouse logistics



# *Notable Experience – First Year of Master's Program*

## *Driving Simulator with Buttocks Haptic Feedback*

### PROFESSIONAL SKILL DEVELOPMENT

- Simulates driving acceleration using tactile shear force feedback on the seat surface
- Seat motion stimulates skin on the hips to reflect acceleration, braking, and turning
- Includes pitch-tilt mechanism to replicate slopes and bumpy roads
- Enhances realism in virtual driving experiences

**DRIVING SIMULATOR WITH BUTTOCKS HAPTIC FEEDBACK**

Driving Simulator / Haptic Feedback / VR

**APRILab**  
互動技術平台產業新興應用聯盟

QR code (聯盟網站)   QR code (加入會員)

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# *Notable Experience – Master's Thesis*

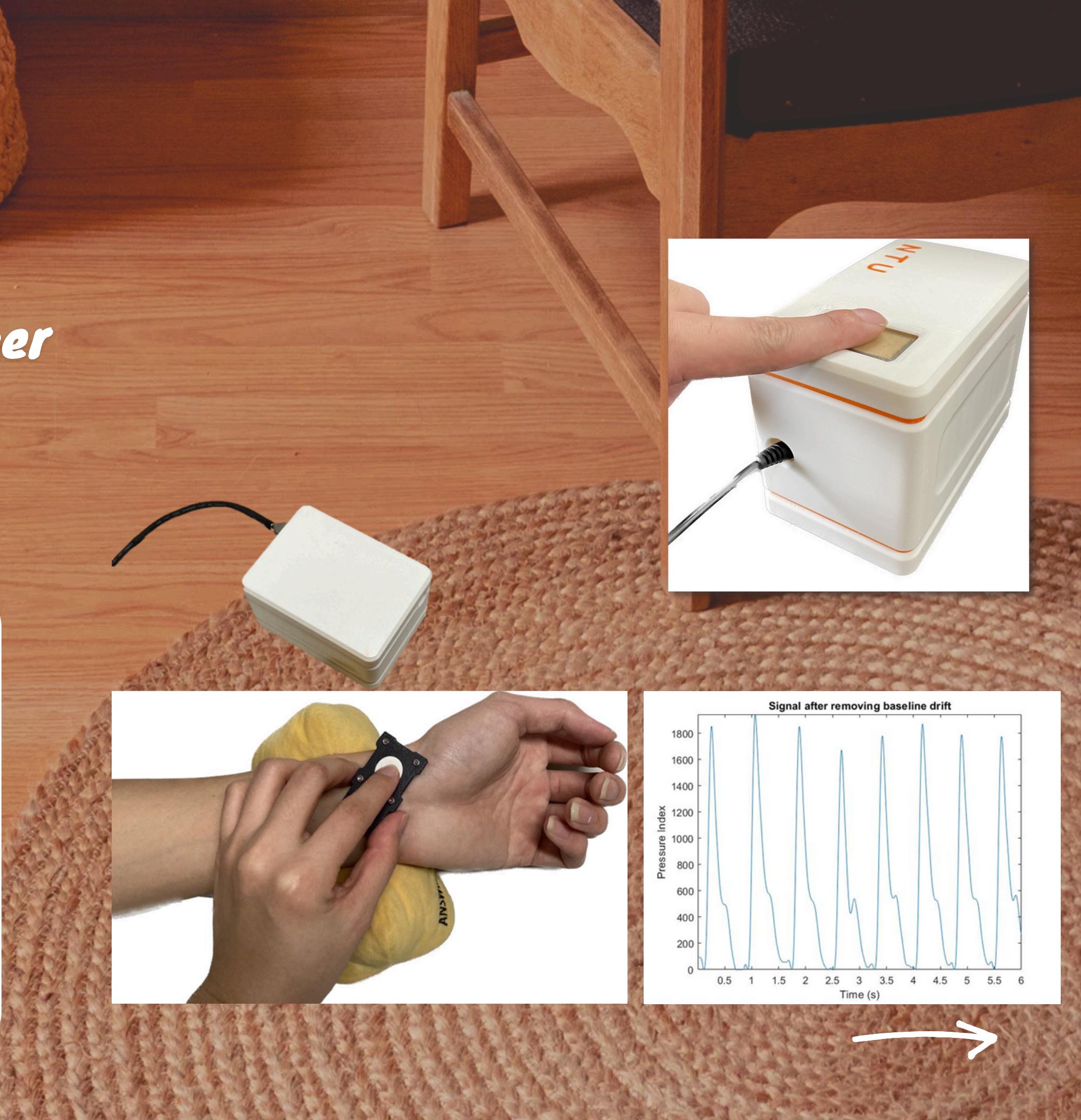
## *Development of a TCM Three-Finger Pulse Diagnosis System Using PVDF and Pneumatic Control*

### THESIS ABSTRACT

Master's Thesis – Automated TCM Pulse Diagnosis System

- Developed an automated system to simulate TCM pulse-taking and capture high-precision pulse signals for objective diagnosis
- Integrated PVDF sensors, airbag PID control, and a real-time C# interface
- Applied pulse waveform modeling, pneumatic regulation, and MATLAB signal analysis for classification
- Designed core modules: airbag mechanism, voltage amplification, PID tuning, and system calibration
- Solved interference issues using filtering and stepwise control strategies

Demonstrated skills in system integration, precision control, and biomedical signal processing

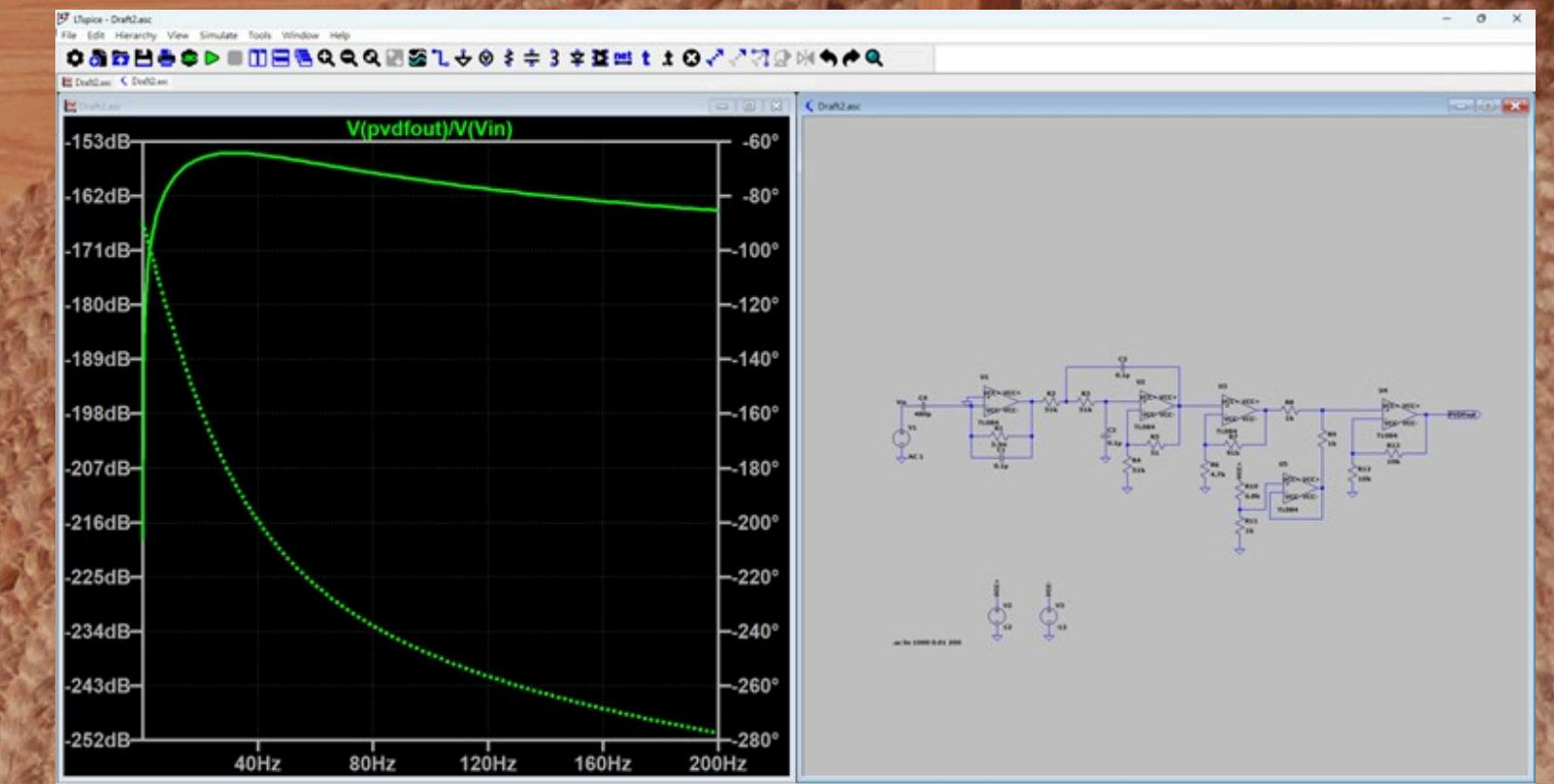
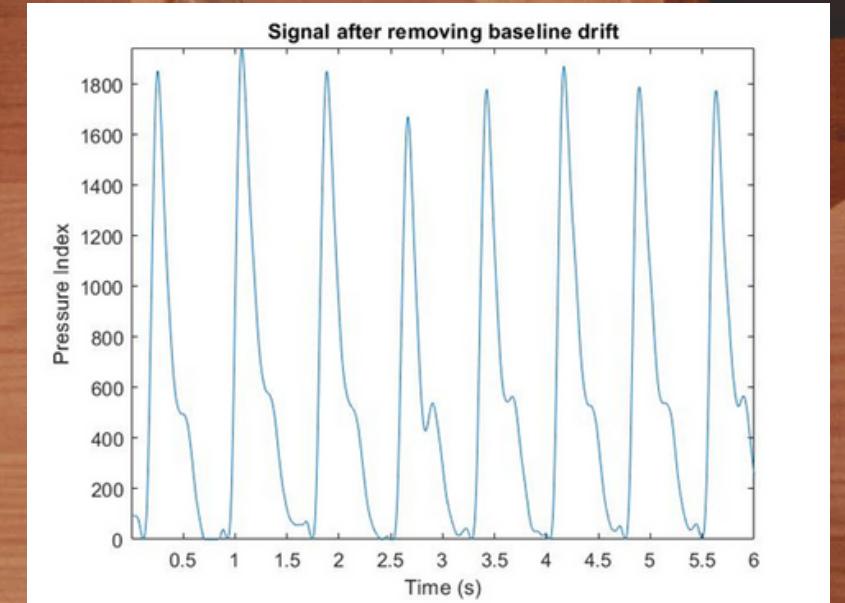


# *Notable Experience – Master's Thesis*

## *Development of a TCM Three-Finger Pulse Diagnosis System Using PVDF and Pneumatic Control*

### SETBACKS AND SOLUTIONS

- Faced difficulty balancing noise rejection and waveform stability in pulse sensing
- Parameter tuning was highly sensitive — small changes impacted overall performance
- Overcame this by studying the math and circuit principles behind each design variable
- Achieved stable and accurate pulse signals through precise calibration
- Gained strong hands-on skills in sensor tuning and system optimization



- Office and Reporting Software  
Word, Excel,  
PowerPoint, Canva

- CAD & Circuit Design  
AutoCAD,  
Solidworks,  
Inventor, Multisim,  
LTspice

- Programming & Embedded Systems  
C#, C/C++, python,  
Matlab, G-code, 8051  
assembly language, Unity  
Hub, Raspberry Pi, Arduino

- Structural & Material Simulation  
Abaqus, Ansys

- Statistical Analysis  
SPSS

## *Technical Skills*

*Ellie*

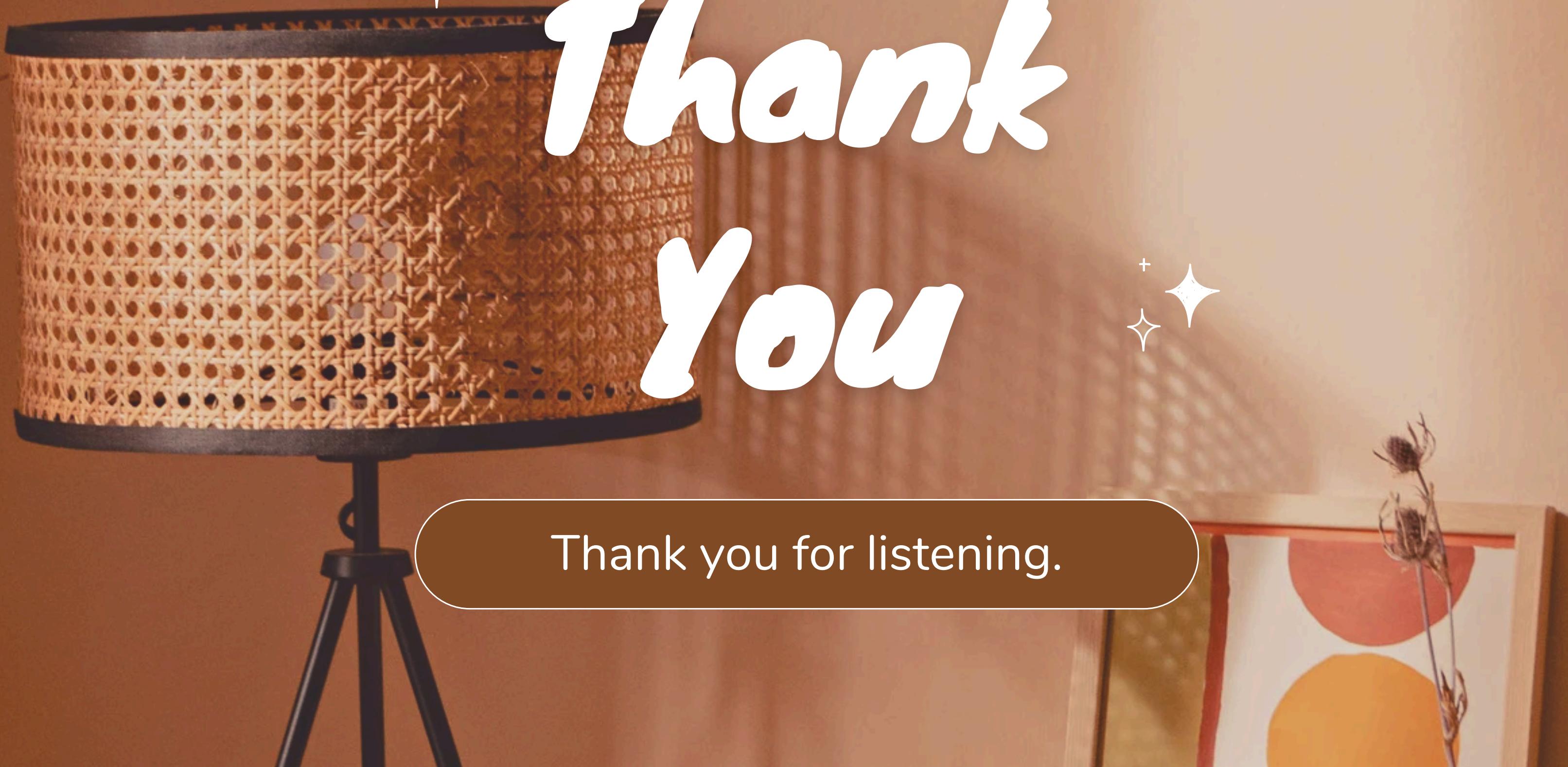
# *Proactive and Ambitious*

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- Embrace continuous learning to adapt to fast-changing technology and globalization
- Self-learned tools across disciplines to meet project needs:
  - Unity Hub, C# – HMI development
  - Multisim, LTspice – Circuit design
  - Abaqus – Mechanical analysis via FEA
  - C++, Python – Microcontroller control & machine learning
- Enjoy learning and eager to keep growing\_
- Aim to apply skills in sensing, control, structure, and system integration
- → Solve real-world problems, optimize performance, and deliver innovative solutions





*Thank  
You*

Thank you for listening.