# YOSHIKI TAKEUCHI (CHIA-SHU KUO)

312-366-6646 | ytakeuch92416@gmail.com | linkedin.com/in/yoshiki-takeuchi

## PROFESSIONAL SUMMARY

Motivated Electrical Engineering student with TSMC internship experience in semiconductor processes, skilled in Python, circuit design, data-driven analytics, systematic problem-solving, and trilingual interpersonal communication. Responsible, willing to learn, seeking opportunities.

## EDUCATION

**Texas A&M University** College Station, TX
*Master of Science in Electrical Engineering, Concentration in Semiconductor* *Sep. 2026 – May 2028*

**Purdue University** West Lafayette, IN
*Bachelor of Science in Electrical Engineering* *Aug. 2021 – May 2025*

## TECHNICAL SKILLS

**Programming Languages:** Python (pandas, NumPy, Matplotlib), C, MATLAB, SystemVerilog, Assembly, Linux
**Software & Tools:** Microsoft Office, LTspice, STM32CubeIDE, KiCad, PCB Layout, Oscilloscopes, Digital Multimeters, Power Supplies
**Engineering Concepts:** N28 Process Flow, Digital System Design, Linear Circuit Analysis, Verilog on FPGA, Microprocessor Systems, Semiconductor Devices, Nanoelectronics, Electromagnetics, Electrical Engineering Fundamentals
**Languages:** English, Chinese, Japanese — Trilingual with fluent and natural communication in all

## INTERNSHIP EXPERIENCE

**TSMC** Taiwan Semiconductor Manufacturing Company Jun. 2024 – Aug. 2024
***Process Integration Engineer Intern*** *Taichung, Taiwan*

- Learned N28 technology, analyzing FEOL and BEOL process flows to deepen understanding of semiconductor fabrication and support process optimization efforts.
- Conducted an in-depth MRAM case study, revealing critical insights into the temperature-dependent lowering of the coercive field and plasma-induced MRAM magnetic tunneling junctions to advance memory technology innovation.
- Gained expertise in metal gate and high-k dielectric technologies, enhancing semiconductor process development.
- Enhanced expertise in semiconductor fabrication processes during internship, including Chemical Mechanical Planarization (CMP), Chemical Vapor Deposition (CVD), Physical Vapor Deposition (PVD), Wet and Dry Etching, and Lithography.

**TSMC** Taiwan Semiconductor Manufacturing Company Jun. 2023 – Jul. 2023
***Intelligence Production Planning and Control Intern*** *Taichung, Taiwan*

- Developed and implemented a Python-based Markov Chain model that optimized wafer queue management, resulting in a 28% reduction in queue times and a marked improvement in overall production efficiency.
- Spearheaded the “Auto Target” initiative for N28 eFlash technology, streamlining production workflows and achieving a 0.1-day reduction in cycle time, enhancing throughput and process stability.
- Acquired hands-on experience with Automated Material Handling Systems (AMHS), ensuring seamless logistics operations while upholding cleanroom compliance and manufacturing precision.

**Teaching Assistant** of First Year Engineering Aug. 2023 – May 2024
*Purdue University ENGR 131 / 132* *West Lafayette, IN*

- Mentored and supported a cohort of 100 first-year engineering students, enhancing their skills in MATLAB and Microsoft Excel by assisting in debugging code, solving problems, and facilitating the application of engineering principles.

## RESEARCH TEAM AND PROJECTS

**Birck Nanotechnology Center: APHI Silicon** | *Process Flow, Fabrication Technique* Aug. 2024 – Present

- Collaborated with interdisciplinary teams to optimize silicon-based advanced packaging and heterogeneous integration processes, improving interposer systems with integrated photodiodes, memory, and TSVs.
- Performed semiconductor fabrication and metrology in a cleanroom, leveraging techniques like SPC to ensure precision and quality control.

**EEG-Based Brain-Computer Interface for Mouse Control** | *PCB Design, Microprocessor* Jan. 2025 – Present

- Designed and implemented a 4-channel EEG system (10-20 system) to measure and process brain voltage fluctuations.
- Created a custom EEG circuit PCB design for signal acquisition, noise reduction, and amplification.
- Implemented an Analog-to-Digital (ADC) and microprocessor for real-time data acquisition and transmission via USB.

## LEADERSHIP AND EXTRACURRICULAR

**Alpha Phi Omega - National Service Fraternity** | *Active Member* Jan. 2023 – Present

- Completed 35 hours of service per semester by participating in campus and local community service projects, while organizing and coordinating Fall 2023 pledge service events as a Pledge Trainer Buddy.

**Purdue Philharmonic Orchestra** | *Second Violinist* Aug. 2021 – May 2022

- Participated in the ”Let Music Alive” program in Europe during the summer of 2022 with the Purdue orchestra, performing in multiple concerts and demonstrating proficiency and collaboration in a large ensemble setting.