# Leo Lou

Device R&D / PIE / Process PE
13676899253@163.com

Physics graduate researcher focused on neuromorphic devices, integrated-circuit device physics, and AI-assisted semiconductor research. Chinese name: Lou Haoliang / ???.

## PROFILE

Physics-trained semiconductor device researcher with a microelectronics foundation and hands-on experience across thin-film preparation, electrical characterization, and materials analysis. Current work centers on neuromorphic devices, non-volatile memory concepts, ion-regulated interfaces, and bio-derived dielectric materials. Uses AI-assisted workflows for literature mapping, experiment planning, data organization, and technical synthesis.

## EDUCATION

### M.S. Candidate, Physics

**SHAOXING UNIVERSITY / 2025 COHORT**

Direction: Integrated Circuit Devices & Physics. Research focus: neuromorphic devices, emerging dielectrics, and AI-assisted semiconductor research.

### B.Eng., Microelectronics Science and Engineering

**SHAOXING UNIVERSITY**

Foundation in semiconductor physics, device physics, IC process, circuit analysis, EDA, layout, testing, and semiconductor materials.

## RESEARCH

### Neuromorphic Memory / Ion-regulated Interfaces / Sustainable Materials

Explores synapse-inspired response, adaptive modulation, ion-modulated interfaces, bio-derived dielectric systems, and process-accessible material concepts for emerging electronics.

### AI-assisted Research

Applies AI as a research amplifier for reading, planning, mechanism analysis, data organization, and writing workflows.

## PROJECTS

### Electrolyte-gated Neuromorphic Memory

Explores PVA:Li-based electrolyte systems for non-volatile memory and artificial synapse functions, emphasizing low-voltage modulation, adaptive response, and device-level application value.

### Bio-derived Gate Dielectrics

Investigates gum arabic-related dielectric concepts, with interest in green materials, ion modulation, flexible compatibility, low-cost processing, and dielectric behavior.

## TOOLKIT

Spin coating · Vacuum evaporation · Magnetron sputtering · ALD · Probe station · Primarius FS-Pro · I-V analysis · SEM · XPS · XRD · Thin-film process · Device response analysis

## COURSEWORK

Semiconductor Physics, Semiconductor Device Physics, Advanced Quantum Mechanics, Thin Film Physics; IC Process Principles, IC Process Experiment, IC Manufacturing, Semiconductor Device Packaging; Circuit Analysis, Digital Electronics, Electronic Circuits, EDA, IC Layout Design; Semiconductor Optoelectronic Materials, Photovoltaic Devices, IC Analysis and Testing.

## PUBLICATION

### Related Nano Letters Publication

Related published work in Nano Letters / ACS Publications. DOI: 10.1021/acs.nanolett.5c05834. Title, author order, and contribution note can be finalized after confirmation.