

# Yixun Hu

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## EDUCATION

**Tsinghua University**, Beijing, China 2021.09 - Present  
*Bachelor of Electronic Engineering* Overall GPA: 3.93/4.00 Ranking: 12/267  
*TOEFL Score: 106 (Reading: 30, Listening: 24, Speaking: 25, Writing: 27)*

## RELEVANT COURSES

- **Circuit design:** Fundamentals of Electronic Circuits and System I/II ( $A^+$ ), Project Design and Making of Electronic System ( $A$ ), Basic Experiments for Electronic Circuits and Systems 2 ( $A^-$ ), Fundamental Experiment of Digital Logic and Processor ( $A$ )
- **Programming:** Computer Program Design (1)/(2) ( $A$ ), Data and Algorithm ( $A^-$ )

## RESEARCH INTEREST

Circuits and systems, bioelectronics, thin-film transistor

## RESEARCH EXPERIENCE

**Design and fabrication of a piezoresistive electrical stimulation system based on OTFT** 2023.09 - Present  
*Advisor: Prof. Chen Jiang* Bioelectronic sensing/stimulation systems research group, Tsinghua University

- Designed and simulated a ring oscillator, edge detector and amplifier with Organic Thin Film Transistor (OTFT) model in Cadence virtuoso to generate a adjustable variable frequency oscillating voltage signal for stimulus.
- Designed and fabricated a reusable mold made by photolithography for a variable resistance using SU-8 photoresist.
- Designed and fabricated a piezoresistive sensor based on a pillar micro-structure of polydimethylsiloxane (PDMS) mixed with silver nanowires to provide a pressure-sensitive passive load for the circuit.

**Simulation: Recovery of the aliasing signals from high-throughput arrays** 2022.11 - 2023.05  
*Advisor: Prof. Chen Jiang* Bioelectronic sensing/stimulation systems research group, Tsinghua University

- Constructed the physical simulation environment for the high-throughput arrays with COMSOL to build the simulation platform for current signals generating.
- Generated the aliasing signals using Leaky Integrate-and-fire (LIF) model with Python and MATLAB to simulate the blurred signal responses of the neurons.
- Reconstructed the origin signal with Convolutional Neural Networks (CNN) to prove that the blurred signals have the possibility to be restored with the MNIST dataset. Specifically, The recognition accuracy of CNN for blurred signals was around 75%.

## SKILLS

- **Device fabrication:** photolithography, thermal-evaporation, spincoating and blade coating.
- **Circuit simulation:** Cadence virtuoso, LTspice.
- **Device simulation:** COMSOL.
- **Programming:** C, C++, Python, MATLAB, Verilog, Latex.

## HONORS AND AWARDS

- **Comprehensive Excellence Scholarship in Tsinghua University** 2023  
*Award the students for comprehensive performance, 30 students out of 270 in Electronic Engineering department*
- **National Scholarship** 2022  
*5 students out of 270 in Electronic Engineering department*
- **Comprehensive Excellence Scholarship in Tsinghua University** 2022  
*Award the students for comprehensive performance, 30 students out of 270 in Electronic Engineering department*
- **Second prize in the 14th National Mathematics Competition for College Students (non-mathematics major) in Beijing** 2022
- **Second prize in the 25th Hardware Design Competition in Tsinghua University** 2022
- **Freshman Scholarship** 2021  
*Awards the students who had superior performance before entering Tsinghua University*

## COURSE PROJECT EXPERIENCE

- **Design of a bandgap reference** 2023.09 - Present  
– Ongoing design and pre-simulation of the bandgap reference schematic.
- **Design of a five-tube amplifier** 2023.07 - 2023.08  
– Pre-simulation, layout design and post-simulation of a basic 40dB gain, bandwidth  $\geq 100\text{MHz}$  five-tube amplifier using .18-micron process with Cadence to develop a possible amplifier for later circuit design.

## LEADERSHIP AND ACTIVITIES

- **Student Association of Science and Technology, Department of Electronic Engineering, THU** 2023.05 - Present  
*Member of hardware department, in charge of reimbursement*
- **70th Anniversary of Department of Electronic Engineering, THU** 2022.10  
*Volunteer, worked on alumni reception*
- **Monitor of class 18, Department of Electronic Engineering, THU** 2021.09 - 2022.09