# Jiajun Tang

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## Education

- **Peking University** — Beijing, China
  *B. S. in Applied Physics, School of EECS; CGPA: 89/100* — *Sep 2020 - Jul 2024*
- **University of Michigan** — Ann Arbor, MI
  *Visiting Scholar to Michigan Integrated Circuits Laboratory, Advisor: Prof. David Blaauw* — *Jun 2023 - Dec 2023*

## Research Experience

- **Low Power, Energy Efficient Temperature Sensor** — Peking University
  *Research Assistant to: Prof. Xiyuan Tang* — *Feb 2024 - Jun 2024*
  - Completed CMOS temperature sensor design in TSMC 28nm Process
  - Proposed a novel temperature-voltage transducer, designed a 12-bit SAR ADC for quantization
  - Achieved 0.16K resolution, with 12pJ/conversion and $0.3pJ^{\circ}C^2$ FoM in post-layout simulation result

- **High Efficiency CMOS Digital Transmitter in Localization System** — University of Michigan
  *Research Assistant to: Prof. David Blaauw* — *Jun 2023 - Dec 2023*
  - Completed CMOS Class-D power amplifier design and TX system integration in TSMC 28nm Process, which is ready for tape-out
  - Proposed the idea of bonding-wire based harmonic tuning for class-D power amplifier, adopted eight-shaped inductor structure for inter-stage matching, minimizing EM coupling
  - Participated in satellite flyover tests, power amplifier chip testing and debugging
  - Co-designed the TX with compact battery and antenna. Achieved 40% peak PAE and 17dBm output power in hybrid post-layout & EM simulation

- **High Precision, Low Latency Capacitance-to-Digital Converter** — Peking University
  *Research Assistant to: Prof. Xiyuan Tang* — *Dec 2022 - Nov 2023*
  - Completed CMOS capacitive sensor design and measurement in TSMC 28nm Process, in cooperation with a PhD student in *PRIME* lab
  - Proposed hybrid DT-CT architecture for CDC, adopted dead-band switches to eliminate ELD issues
  - Modeled the incremental $\Delta\Sigma$ loop in MATLAB independently, achieved over 100dB SQNR in the entire measurement range
  - Designed the FIA amplifier and loop integrator with feed-forward path.
  - Achieved 100aF resolution, with 14-bit ENOB and 181.8dB Schreier FoM in measurement result. The paper was published in *IEEE CICC 2024* (second author)

- **Power Management Unit in Advanced Process Node** — Peking University
  *Research Assistant to: Prof. Weixin Gai* — *Mar 2022 - Nov 2022*
  - Completed CMOS power management circuit design applied in high speed wireline transceiver in TSMC 12nm FinFET process, which is ready for tape-out
  - Set up design targets independently, achieved >80dB PSRR in low frequency and ∼10ppm temperature coefficient in post-layout simulation

## Publications

- Zilong Shen, **Jiajun Tang**, Haoyang Luo, Zhongyi Wu, Zongnan Wang, Xing Zhang, Xiyuan Tang, and Yuan Wang, "A 181.8dB FoMs Zoom Capacitance-to-Digital Converter with kT/C Noise Cancellation and Dead Band Operation," in *2024 IEEE Custom Integrated Circuits Conference (CICC).*

## Relevant Courses

- **Circuit Design**: Radio Frequency Integrated Circuit; Advanced Analog Integrated Circuits Design; Principle and Design of Integrated Circuit; Fundamentals of Electronic Circuits and Experiments
- **Device & Physics**: Physics of Semiconductor; Integrated Circuit Devices; Integrated Circuit Manufacturing Technology; Nanoionics; Electrodynamics; Theoretical Mechanics; Quantum Mechanics; Solid State Physics
- **Signal Processing**: Digital Signal Processing; Signals and Systems (Honor Track)
- **Computing**: Introduction to Computation; Data Structure and Algorithm; Computer Architecture and Intelligent Chip Design; Future Computing with Novel Information Device

## Skills Summary

- **Languages**: Mandarin (Native); English
- **Programming**: C++, Python, MATLAB
- **Circuit Design and Simulation**: Cadence Virtuoso, HSpice, Verilog, Chisel, HFSS

## Extra-curriculum Outreach

- Teaching Assistant for Course "Undergraduate Research Practice for Electronic Information Science" at Peking University — Feb, 2024
- Vice President for the Students' Association for Science and Technology at Peking University — Sep, 2022
- Member of School's Basketball Team at Peking University — Sep, 2020

## Honors and Awards

- Merit Student at Peking University — Sep, 2023
- Third Prize Scholarship at Peking University — Sep, 2023
- Third Award in the Final Competition of Integrated Circuit EDA Elite Challenge in China — Dec, 2022
- Award for Scientific Research Excellents at Peking University — Sep, 2022
- Award for Academic Excellents at Peking University — Sep, 2021