Electronic Instrumentation Lab

TU Delft

Who We Are


Kofi Makinwa


Andre Bossche


Albert Theuwissen


Stoyan Nihtianov


Michiel Pertijs


Qinwen Fan

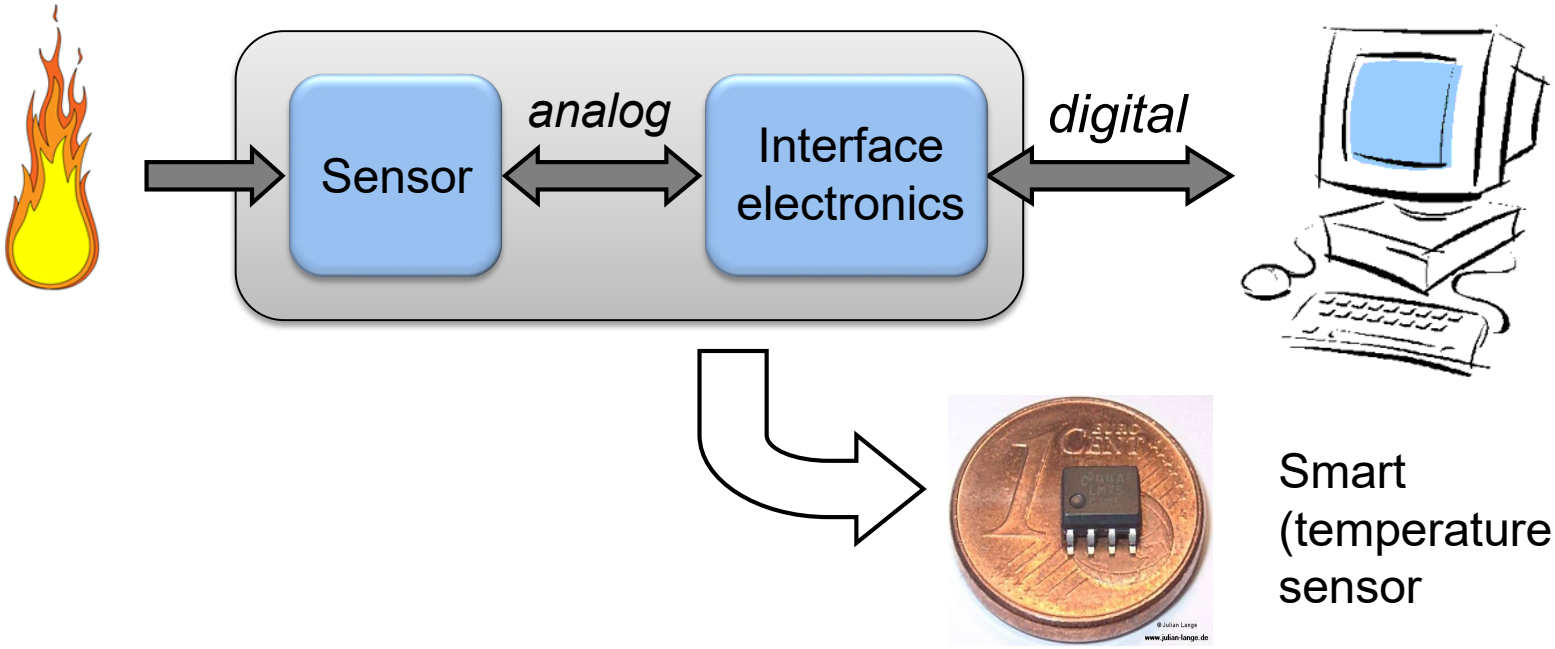
- 6 project leaders
- 5 Post-docs and 25 PhD candidates
- And 8 - 12 MSc Students per year!

What We Offer

- Top mentors
- Informal atmosphere
- On-time graduation
- Tape-out opportunities
- Industrial Placements
- (Some) financial support

Our focus: Smart Sensor Systems

Expertise: Microfabrication, IC design, Sensor physics



Smart (temperature) sensor

Kofi Makinwa

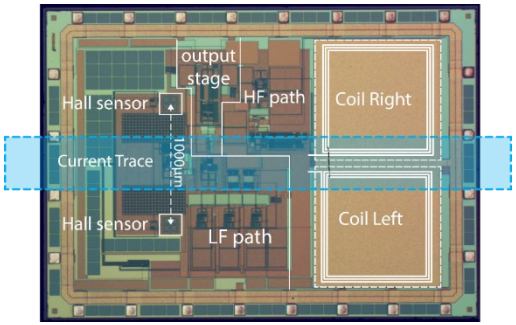
Michiel Pertijs

Stoyan Nihtianov

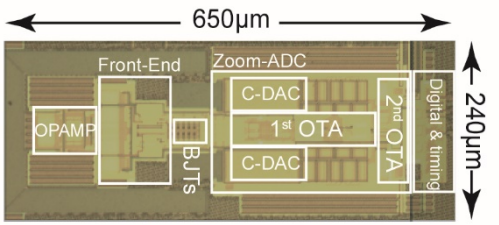
Albert Theuwissen

TU Delft

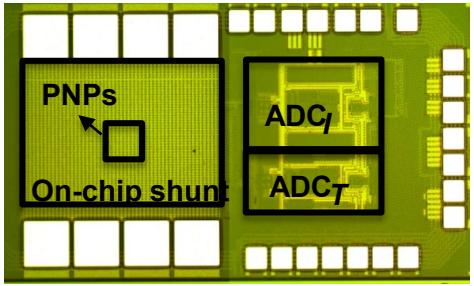
Sensing the world with CMOS



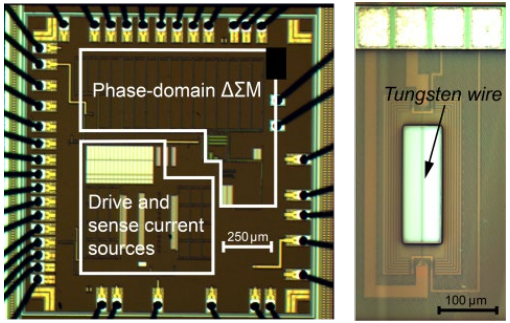
Magnetic field sensors



Temperature sensors



Current sensors



CO_2 sensors

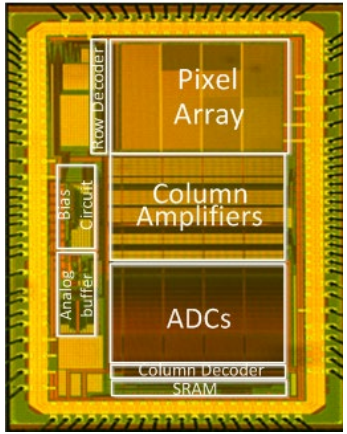
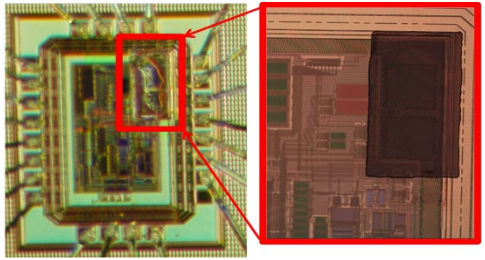


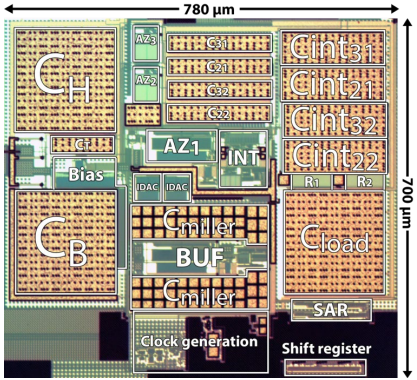
Image sensors



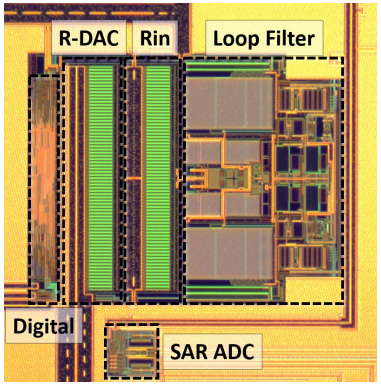
Humidity sensors

Kofi Makinwa

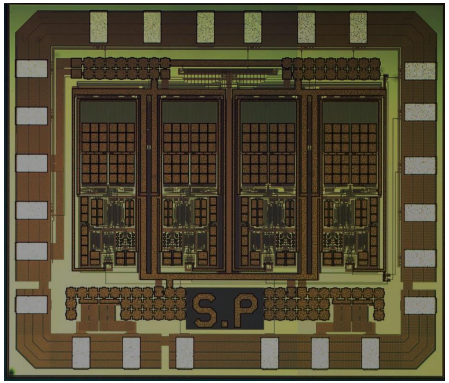
Precision Analog Circuits



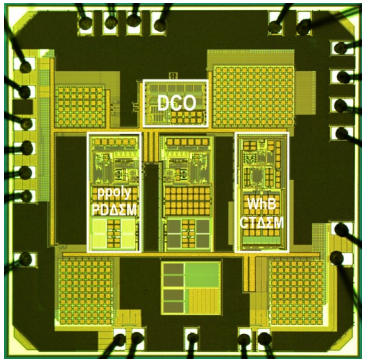
Low-offset amplifiers



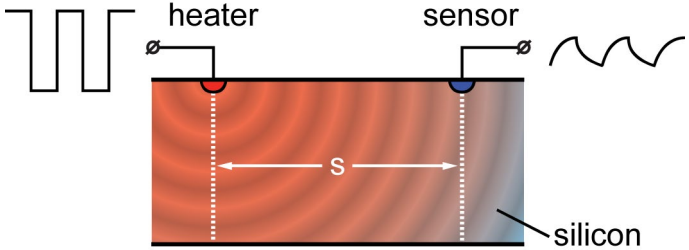
Zoom ADCs



Resistor-based temperature sensors



⇐ RC and TD based ⇒ frequency references



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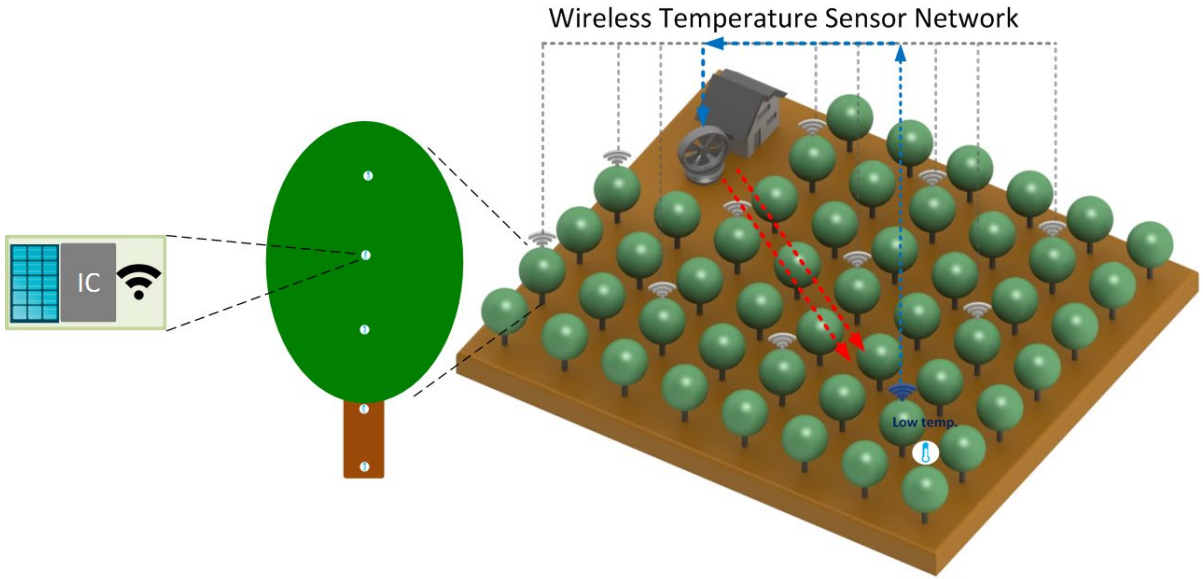
Autonomous Wireless Sensor Node



- Autonomous wireless sensor node for greenhouses and environmental sensing
- Lower cost, miniaturized and low power
- Main focus: Low-power energy harvesters, DC-DC converters and sensors

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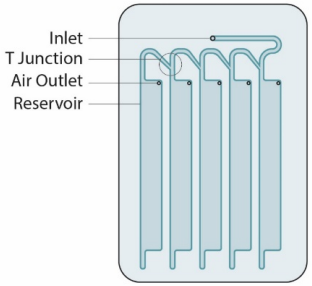
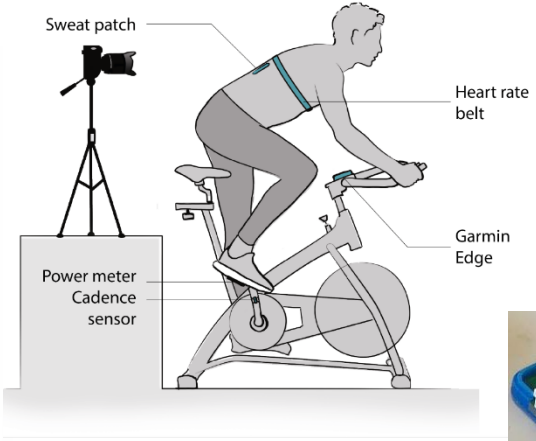
Better audio: Class D amplifiers

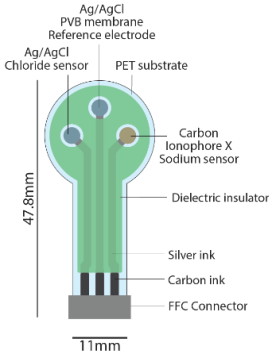
- Automotive audio, speakers, headsets, mobile applications
- Lower cost, ultra-low distortion

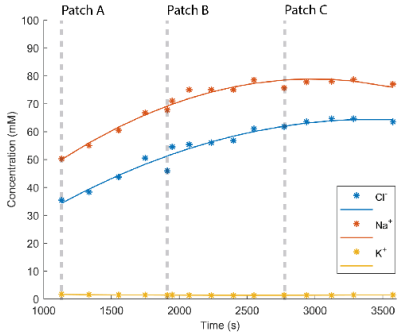
Andre Bossche

BioMedical Monitoring









Sweat collection & analysis

Sensor pants for movement tracking

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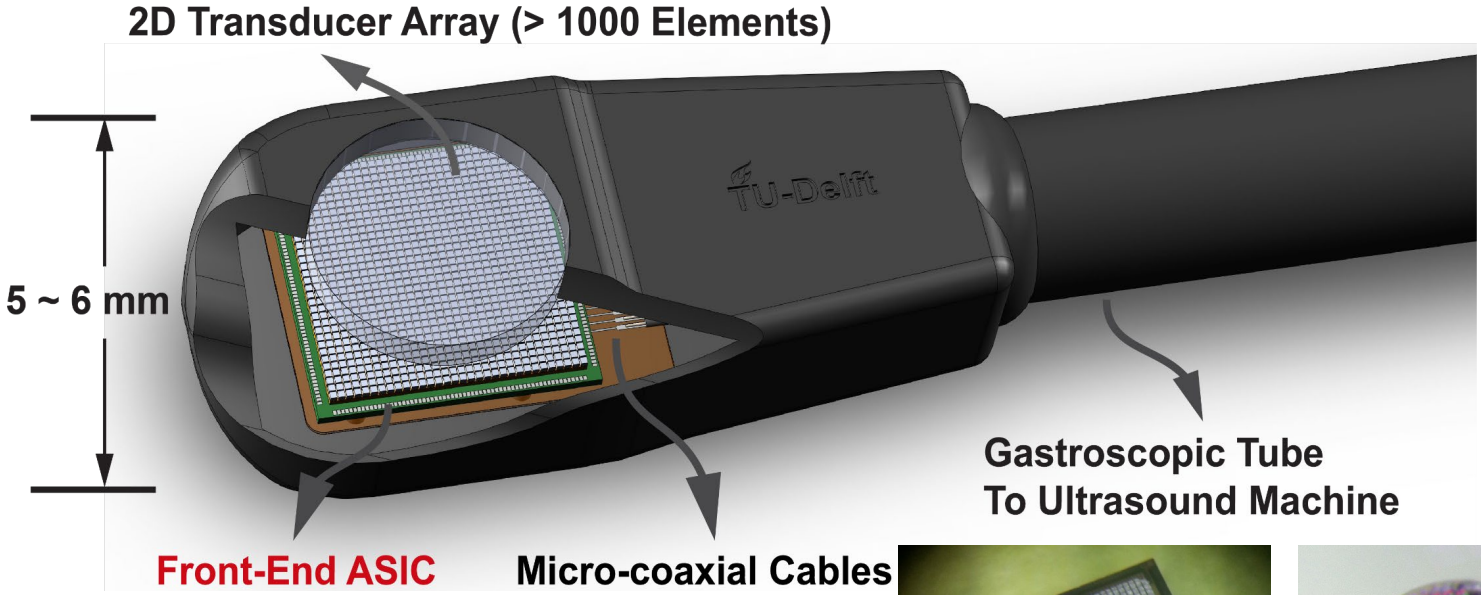
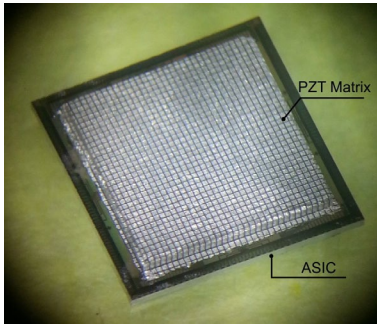
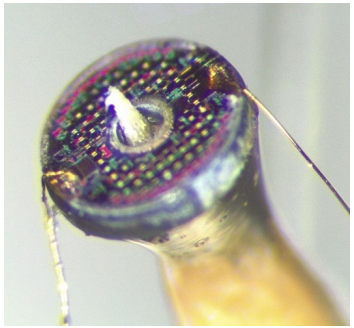
Michiel Pertijs

Smart Ultrasound Probes



- Low-noise amps, analog beamformers
- Power-efficient ADCs, high-voltage pulsers
- Ultrasonic transducers arrays on CMOS
- Measurement and imaging techniques





EI inside!

- Precision Amps: Maxim
- Temp & humidity sensors: NXP, AMS, SiTime & Smartec
- High-performance ADCs: NXP
- SiTime Delft: EIL alumni = 6/7

Partners in 31 projects ~12M€

Suggested Courses (Year 1)

Q1	Measurement & Instrumentation Analog Fundamentals
Q2	Analog CMOS I, Digital CMOS I Semiconductor Device Physics
Q3	Analog CMOS II, Digital CMOS II Sensors & Actuators Nyquist-Rate Data Converters
Q4	Over-sampled Data Converters Intro. To Power Conversion

Want to Know More?

- Feel free to get in touch!
  - To discuss your IEP
  - To learn about short projects
  - To learn about thesis projects
    http://ei.tudelft.nl/Education/mscprojects.php

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