

Zurich  
Instruments

# Dynamic Signal Analysis for Academic and Industrial Applications

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CEO, Zurich Instruments

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- Instrumentation spinoff from ETH Zurich
- Startup in a saturated market?
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# Zurich Instruments Mission



Zurich Instruments provides the **best-in-class** dynamic signal measurement devices for advanced research and development labs.

# Zurich Instruments Timeline

- 2011
  - Nov Headcount 20
  - Feb Moving into bigger offices
- 2010
  - Dec Exhibited at 15 shows, sold 100 HF2, headcount 12
  - Oct Launching PLL and Modulation Option
- 2009
  - May HF2 Series product launch, headcount 5
  - Winning several business competitions
- 2008
  - Oct CTI Start-up Label for sustainable business
  - May First shipment to customers
  - April Zurich Instruments AG incorporated, 3 co-founders

# Zurich Instruments Management



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Sadik Hafizovic

Flavio Heer

Stephan Koch

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CEO

CTO

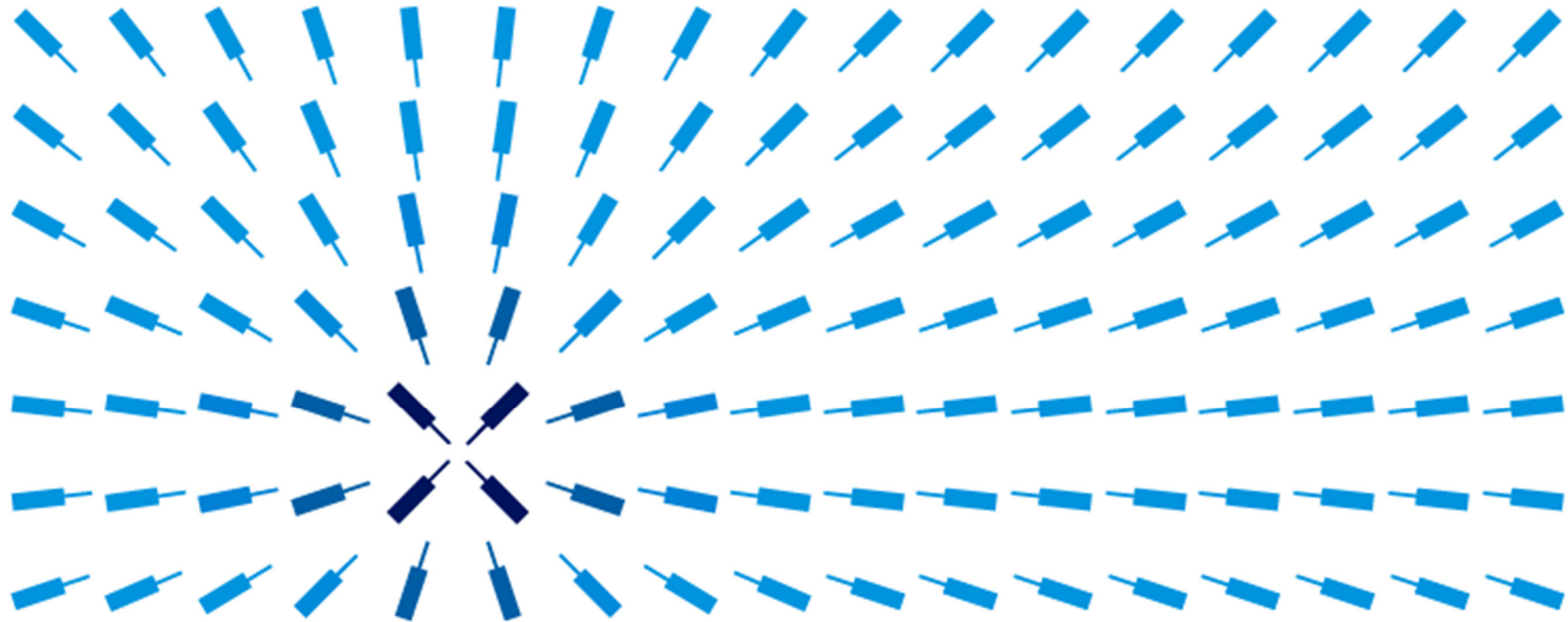
Marketing&Sales

Ph.D. EE  
Co-founder

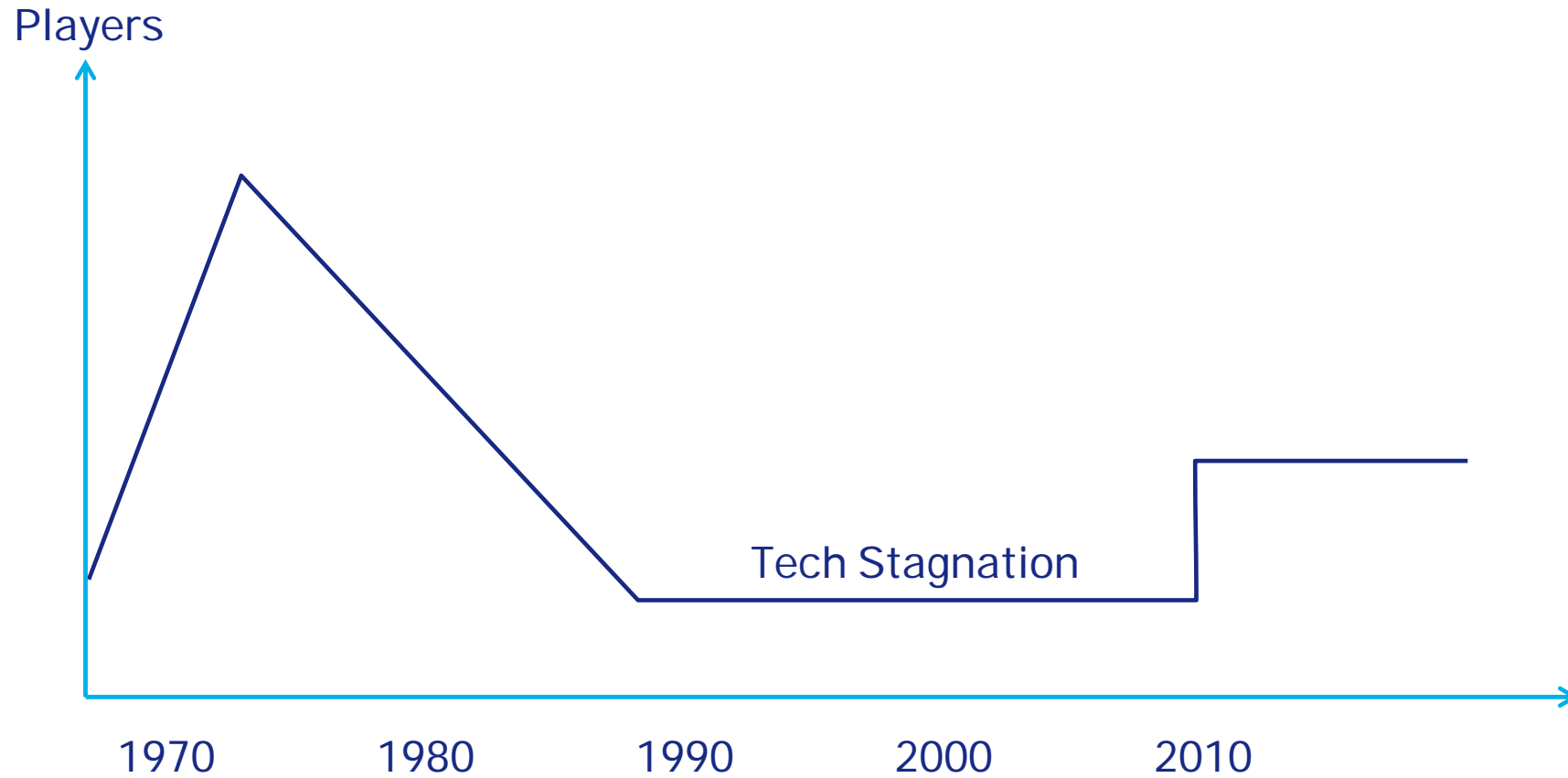
Ph.D. Physics  
Co-founder

MSc EE, MBA

# Startup in a Saturated Market



# Startup in a Saturated Market

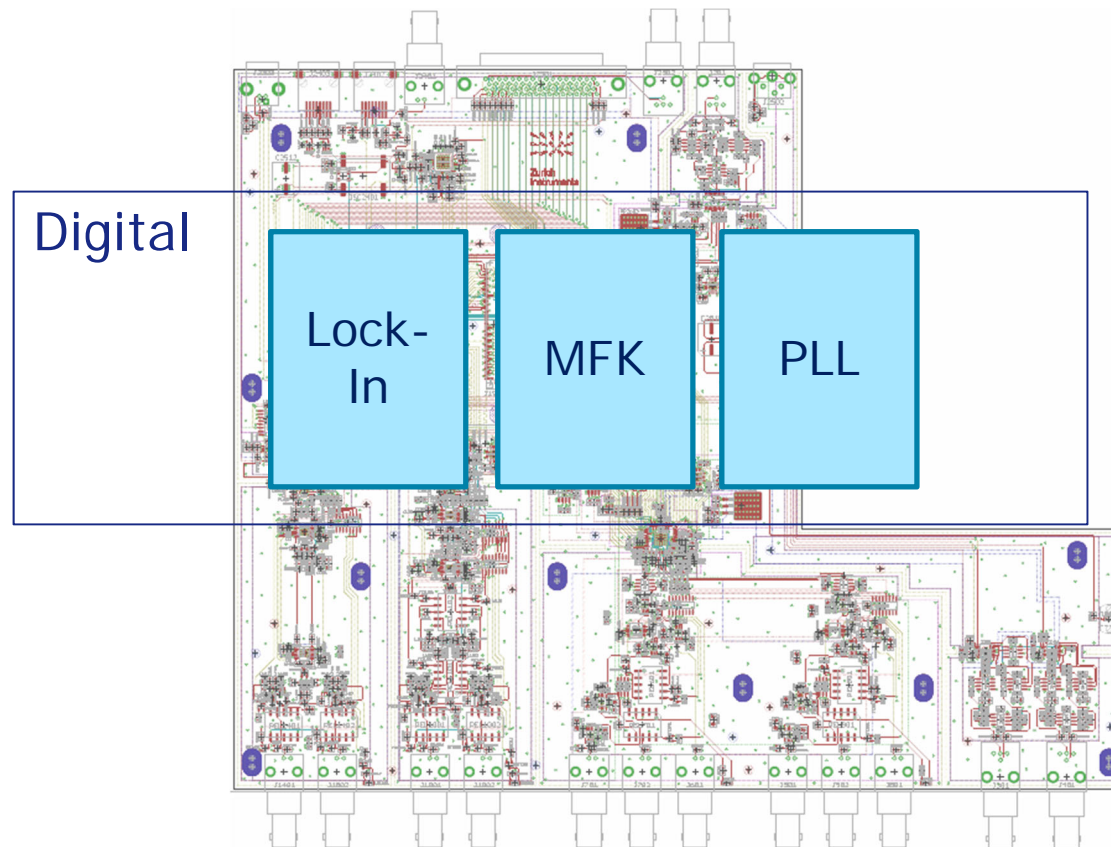


# Turning the Instrumentation World Upside Down: FPGAs







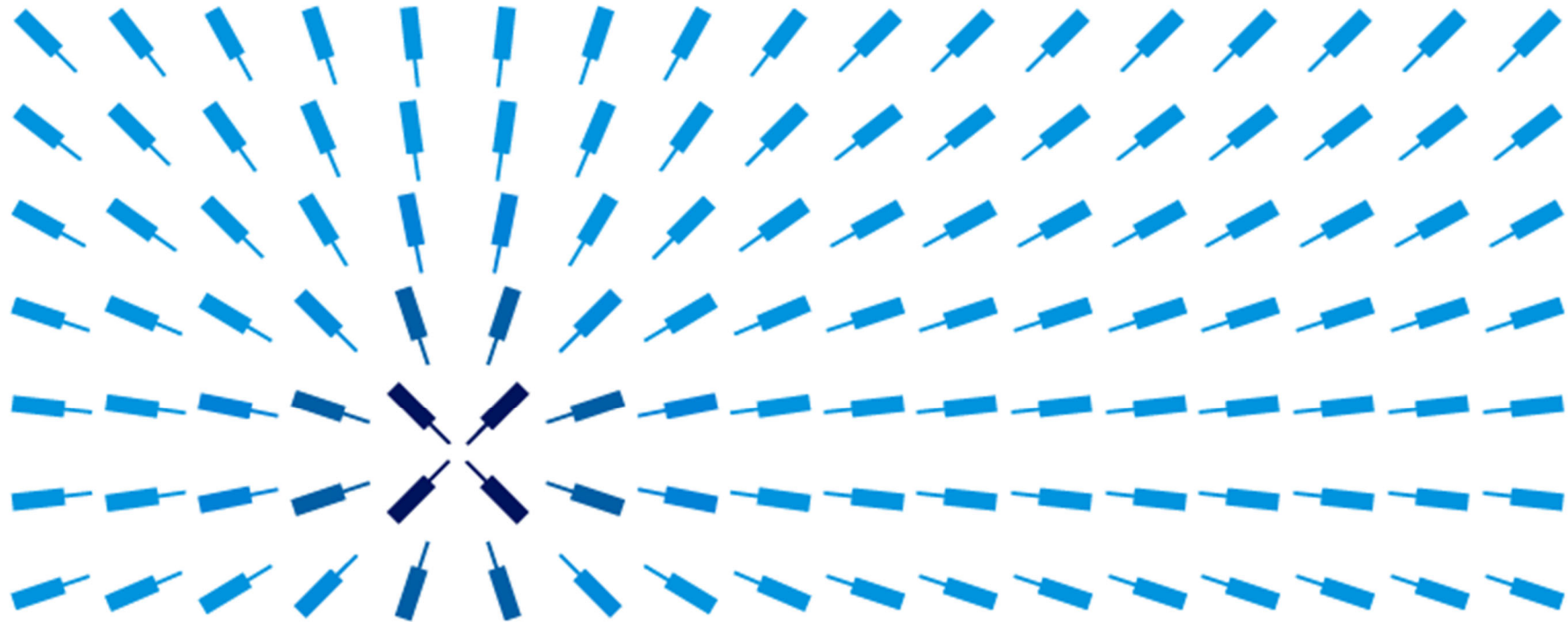
# Profit from Versatile Hardware



# HF2LI Competitive View

SRS: Stanford Research Systems SR: Signal Recovery	SRS 830	SRS 844	SR 7280	ZI HF2LI
				
Number of lock-ins	1	1	1	2
Lock-in technology	Digital	Analog	Digital	Digital
Mixer type	Sinusoidal	Rectangular	Sinusoidal	Sinusoidal
DSP technology	32 bit	-	32/64 bit	128 bit
Analog bandwidth	102 kHz	200 MHz	2 MHz	50 MHz
Demodulators	1	1	3	6
Arbitrary frequencies	-	-	No	Yes, optional
Real-time (10 μs latency)	-	-	-	Yes, optional
Dynamic reserve	100 dB	80 dB	100 dB	120 dB
Phase resolution	0.01 deg	0.02 deg	0.001 deg	0.000001 deg
Ultra-high stability OSC	-	-	-	Yes, optional
Standalone	Yes	Yes	Yes	-
PC connection	GPIB, UART	GPIB, UART	GPIB, UART	USB 480 Mbit/s
PC software included	No	No	No	Yes

# NCCR MUST Research



# Unique Value Proposition

1. Reduce complexity
2. Save time through advanced programmability
3. Open path to new research areas

# Reduce Complexity

## Example THz Spectroscopy

### ■ Devices removed

1. Modulator: Directly lock on repetition rate
2. Function generator: Integrated in ZI HF2
3. 10 MHz reference: No synchronization of several instruments required

### ■ Achievement

- Better signal-to-noise
- More control
- Quicker publication

# Outlook

- Zurich Instruments has a Loaded Pipeline
  - Many Interesting Things up to 600 MHz
- Additional Applications Support

# Zurich Instruments

Your Application. Measured.

