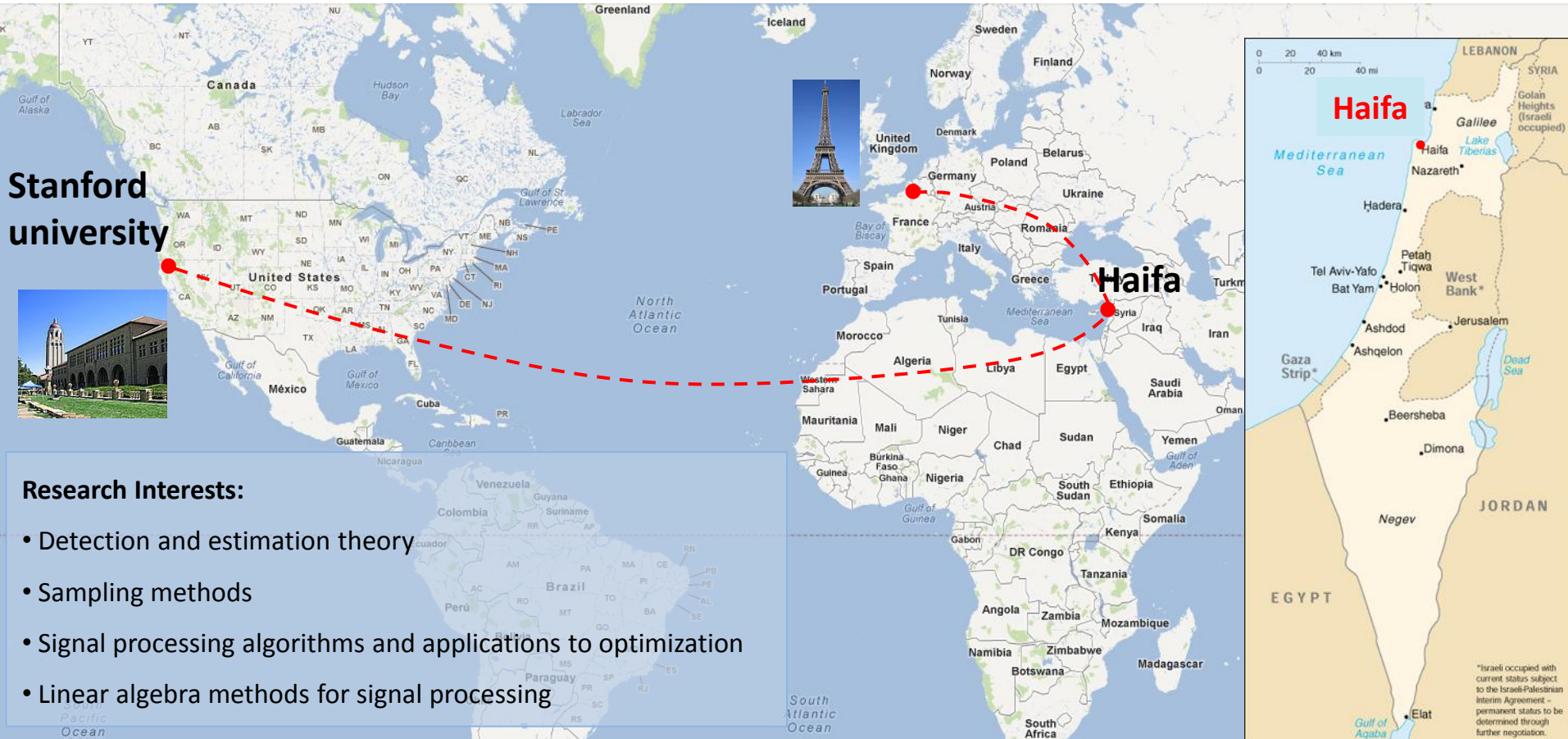# *Yonina Eldar* Professor at Technion TECHNION Israel Institute of Technology

Visiting professor at Stanford

IEEE distinguished lecturer

Defying Nyquist in Analog to Digital Conversion

Stanford university

Haifa

Haifa

Research Interests:

- Detection and estimation theory
- Sampling methods
- Signal processing algorithms and applications to optimization
- Linear algebra methods for signal processing

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« Defying Nyquist in Analog to Digital Conversion».

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Ce séminaire, a été donné dans le cadre des IEEE distinguished lectures.

Résumé :

The famous Shannon-Nyquist theorem has become a landmark in the development of digital signal processing. However, in many modern applications, the signal bandwidths have increased remendously, while the acquisition capabilities have not scaled sufficiently fast. Consequently, conversion to digital has become a serious bottleneck. In this talk a new framework for sampling wideband analog signals at rates far below that dictated by the Nyquist rate will be presented. The focus will be both on the theoretical developments, as well as on actual hardware implementations and considerations that allow realization of sub-Nyquist samplers in practice.

Applications to a variety of different problems in communications, bioimaging, and signal processing will also be described.