NEO-DYNAMIC

innovative solutions in technology

ENGINEERING

**Neo-Dynamic Engineering/ UC, San Diego**

Irina Gorodnitsky, Ph.D. EE

- Current Team Members:
  - David Adams, Ph.D.
  - Anton Yen, Ph.D. Candidate

Optional Team Members:

- Stephen Nunn, Ph.D. (SPAWAR)

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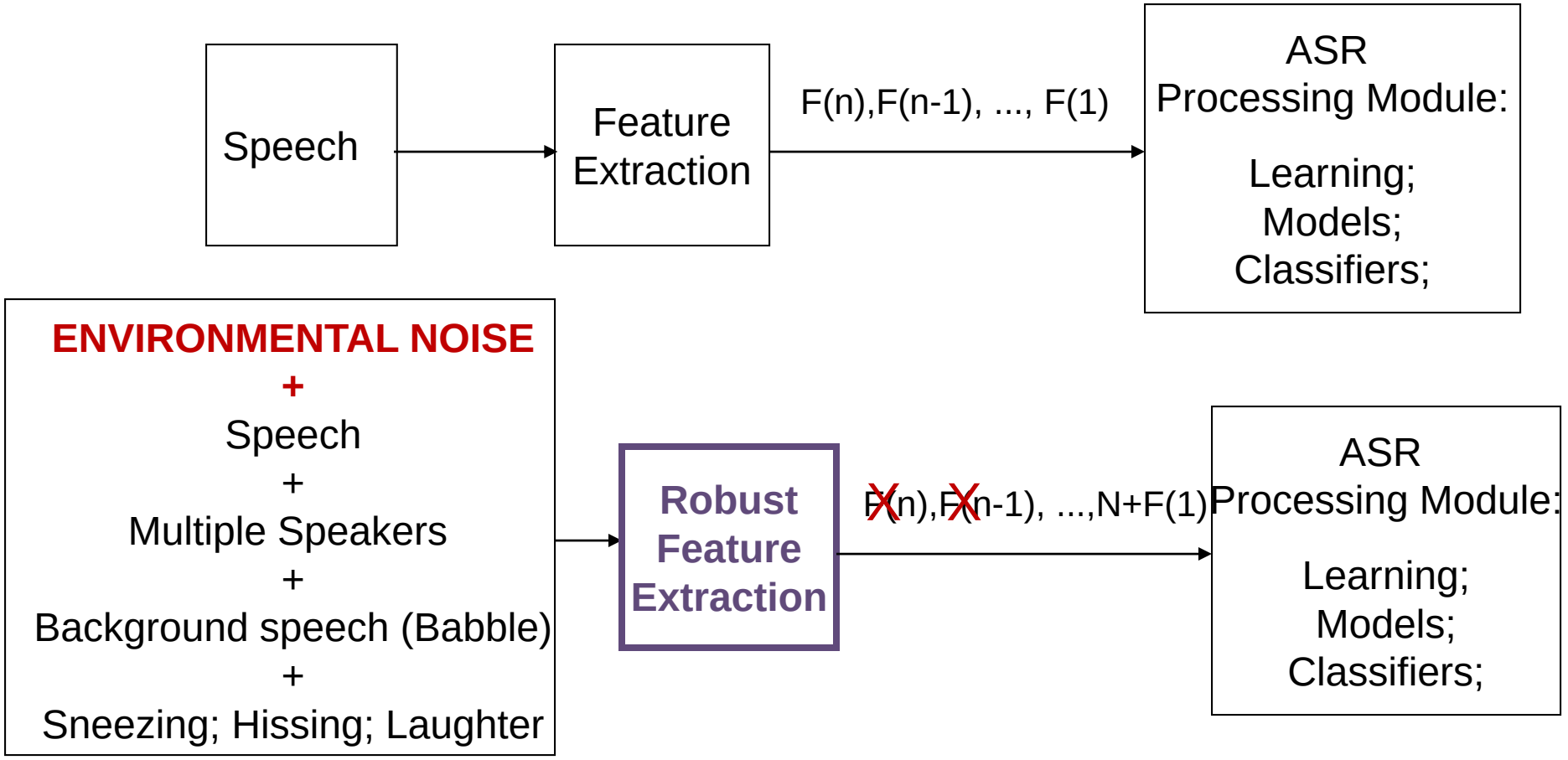
# Research area



NEO-DYNAMIC ENGINEERING

# Unique qualifications and capabilities

1) New methods for robust identification of features of speech in harsh, realistic environments: low SNR (down to -10dB); non-white noise, e.g., engine noise, babble, singing; multiple speakers in noisy backgrounds; prosodic content (laughter, etc.); other mismatch between training and actual speech signals:

Use of **dynamic (derivative) information** in speech signals

$$\dot{X} = \underbrace{\ldots}$$

This is a totally new representation domain.

2) Expand the domain of usable features (information) by adding **unvoiced acoustic – phonemic features** of speech.

**Unique capabilities: Solid mathematical foundation to design algorithms that are intrinsically robust in highly noisy conditions.**

**I Gorodnitsky. Evaluation of derivative time-delay modeling for robust pitch detection in very high and nonstationary noise. *Int. Conf. on Problems in Cybernetics and Informatics.* (2008).**

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## Capabilities we seek:

- Expertise in ASR system design: self-training and unsupervised training methods for ASR, multilingual fusion models from low-quality resources. Understanding IC specific needs.
- Access to appropriate corpora. (I have contacts with groups with a few language databases, possibly uncommon ones like Azeri.)

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# Contact Information


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