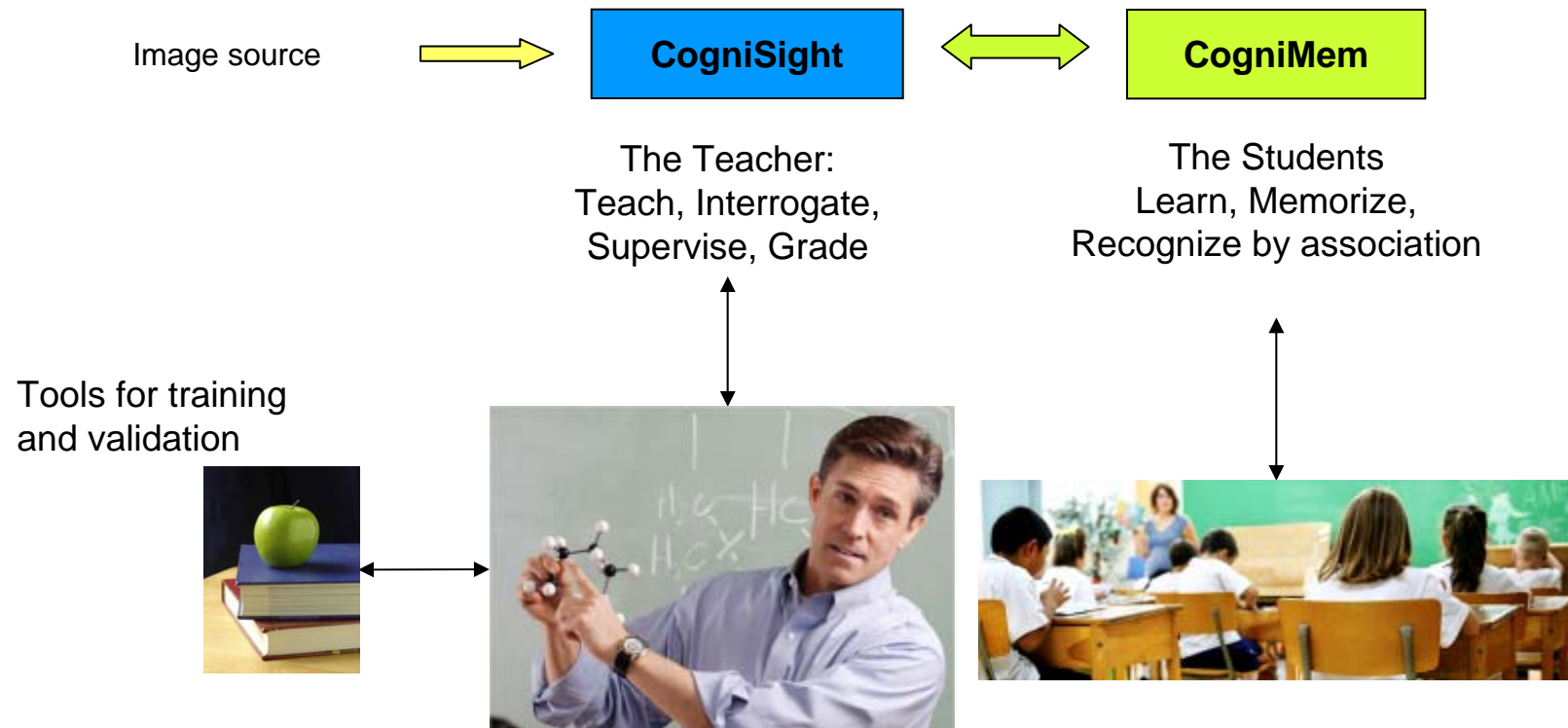


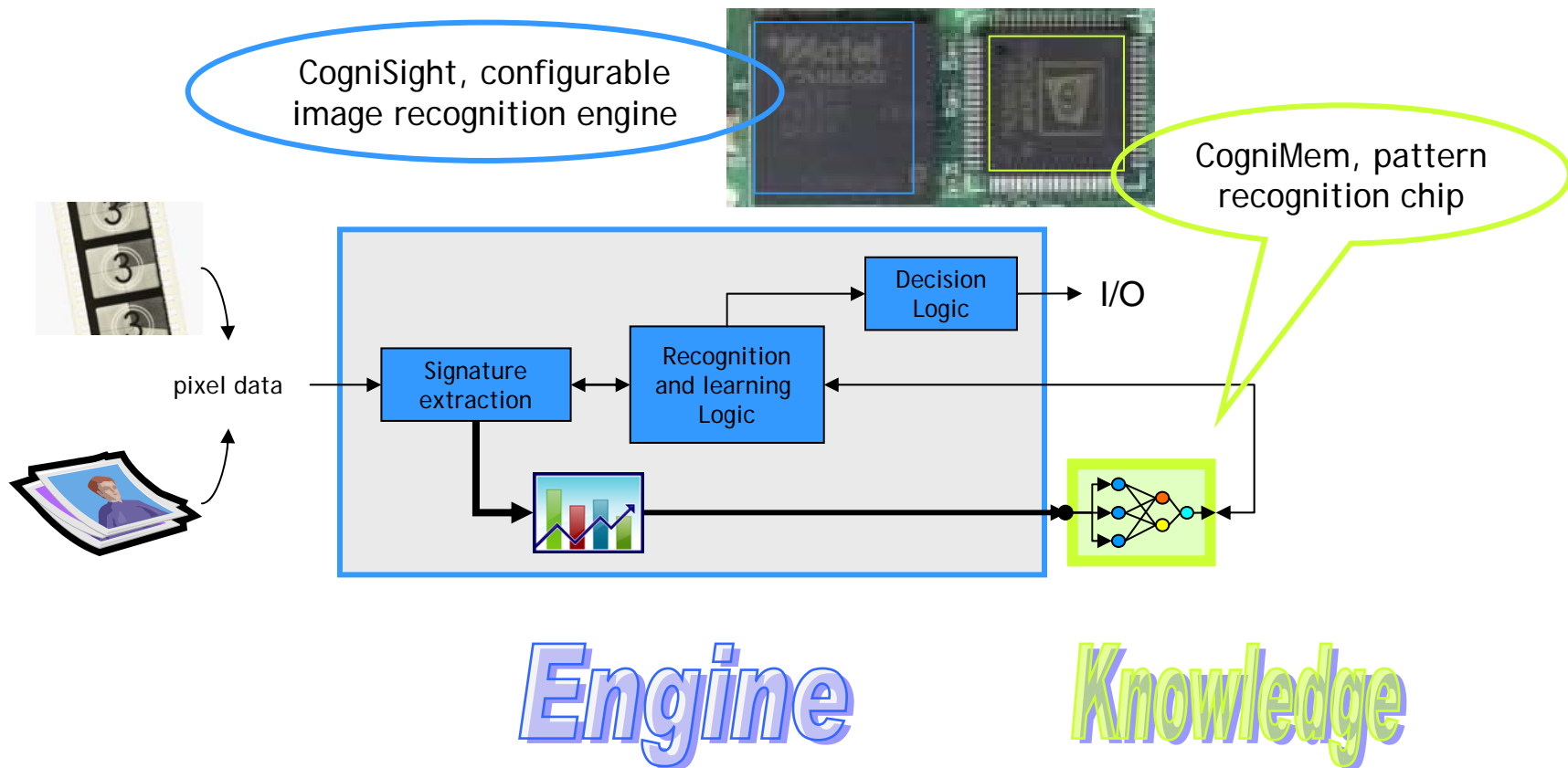
CogniSight and CogniMem: a key combination for high-speed, low power image recognition



Example of configuration:
V1KU miniature evaluation board

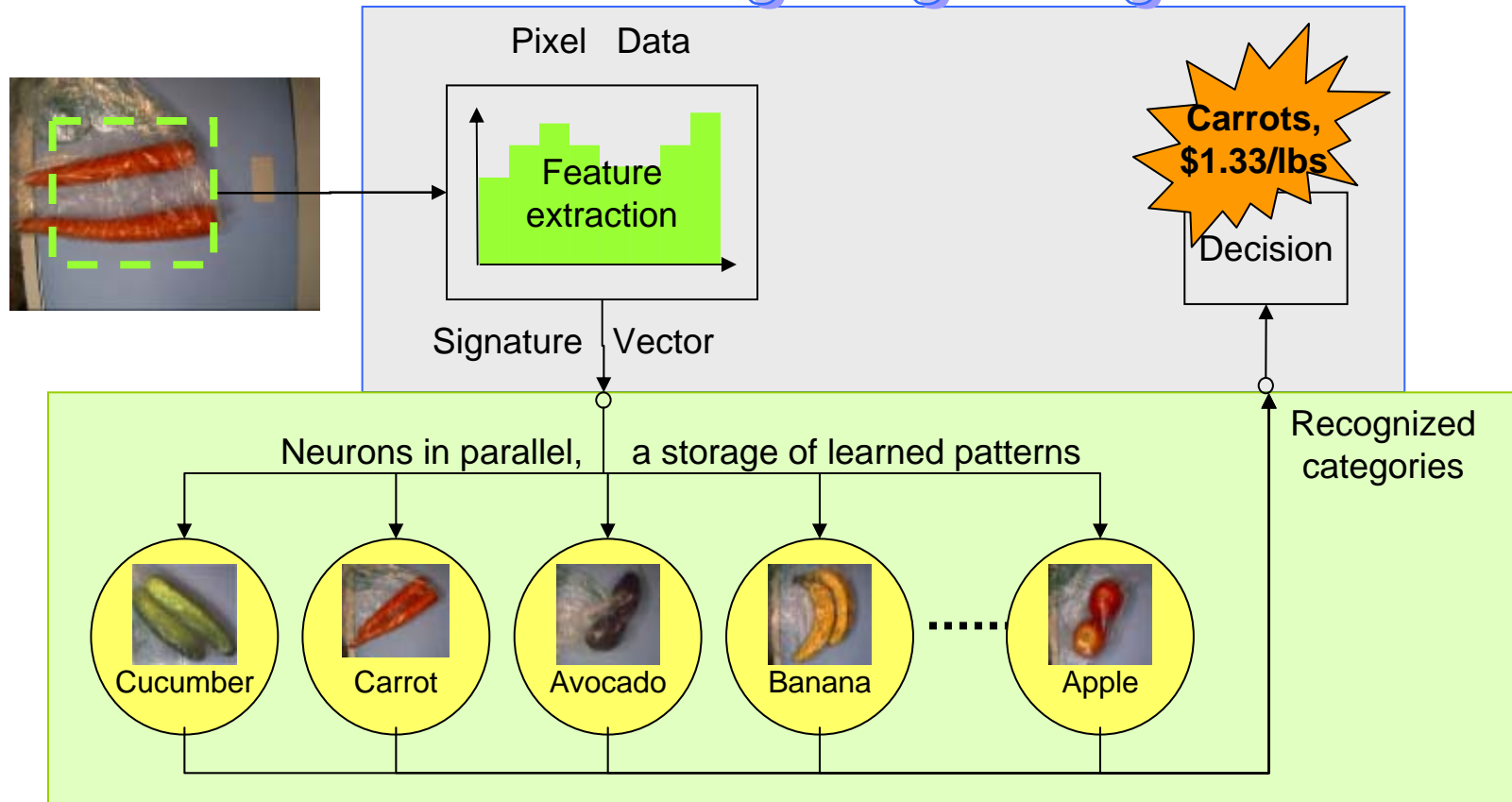


The team: CogniSight and CogniMem



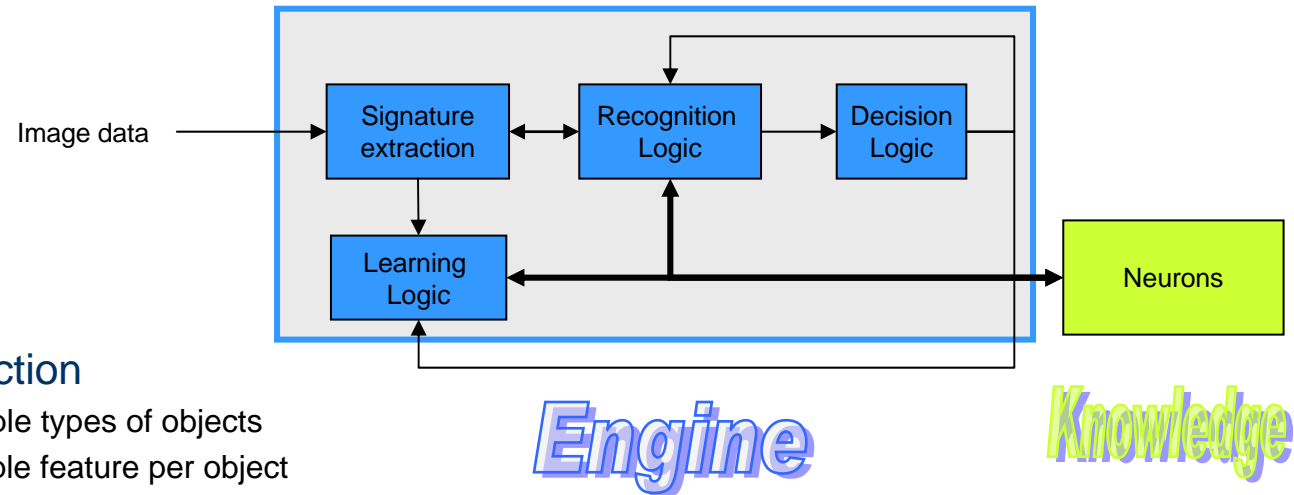
From Pixel to Signature to Decision

CogniSight Engine



CogniMem Knowledge

The possible variations for a CogniSight engine



- **Signature extraction**
 - Single or multiple types of objects
 - Single or multiple feature per object
 - Multiple image source
- **Recognition logic**
 - Expert selection
 - Where to look for, What for, When, How long, etc
- **Decision logic**
 - Retrieve the best fit, verify a minimum number of aggregate
 - Prioritization between experts, hypothesis generation
- **Learning logic**
 - Adaptive learning based on last recognition
 - Conservative or moderate teaching approach

Type of engine

- Object classification
- Object finding
- Target tracking
- Anomaly detection
- Region monitoring
- Template matching
- Stereoscopy
- Real-time filtering
- Blob identification/Clustering
- Behavior analysis

Context of knowledge

- Controlled environment (industrial processing line, cooperative person identification)
- Environmental variations (outdoor lighting and changes of background)
- Non cooperative object (change of scale and orientation)
- Hypothesis generation
- Time integration scale

Example of plurality of recognition engines and sub-networks

Engine for primitive block conditioning
Sub-networks trained for

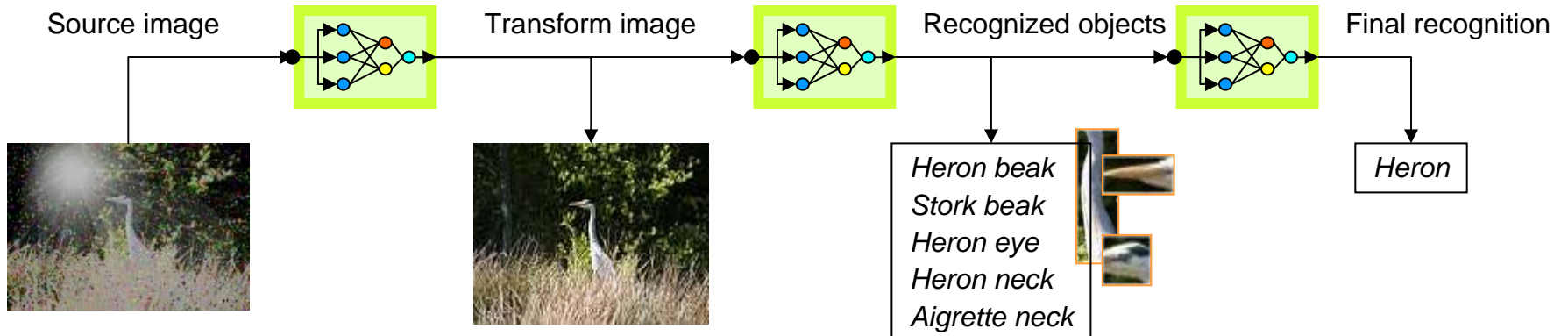
- Adaptive gain control
- Noise removal,
- Edge extraction
- Compression, more

Engine for object recognition
Sub-networks trained for

- Part identification
- Anomaly detection
- Target location, more

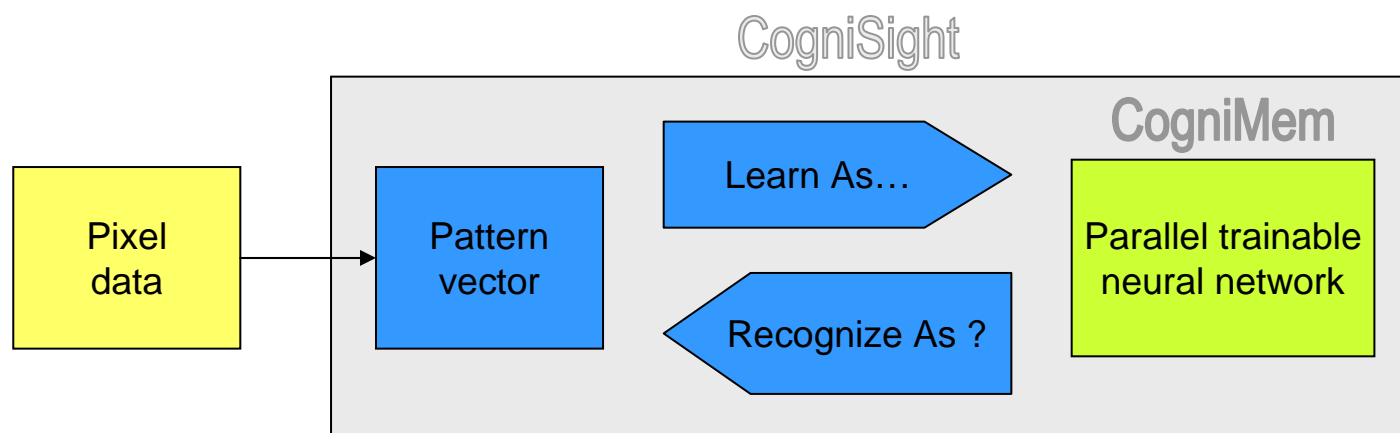
Engine for decision making
Sub-networks trained for

- Data mining
- Clustering
- Uncertainty management



CogniMem chip or CogniSight chipset

- CogniMem → pattern recognition on 1 chip at high speed and with low-power consumption, pattern can derive from pixels, signal and other data source
- CogniSight → image recognition on 2 chips at high speed and with low-power consumption, reconfigurable



CogniSight chipset configurations for OEMs

