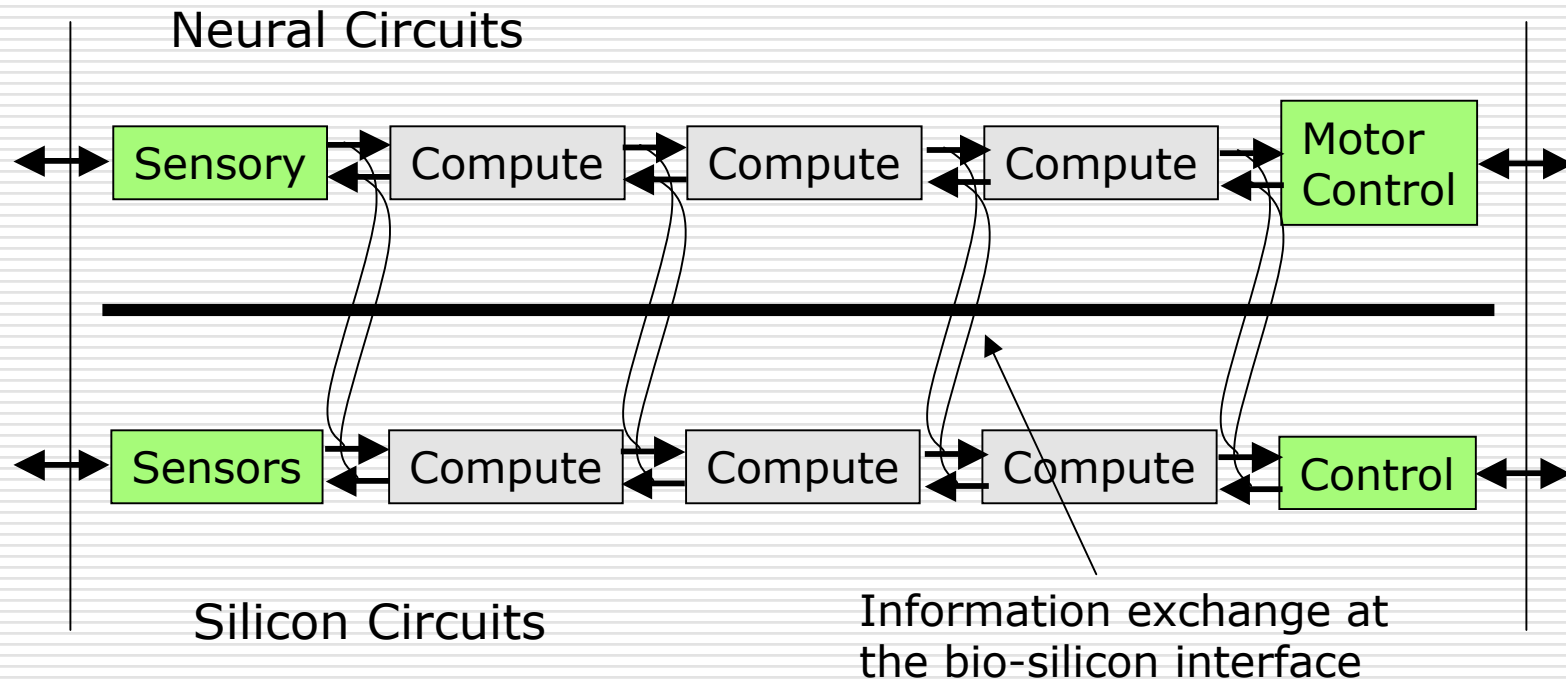


# Neuro-Engineering

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- There is a discipline of engineering that is evolving around neural circuits
- The term Neuro-engineering does not yet have a standardized meaning
  - But generally it means talking and listening to neurons,
  - And replicating neural computation
- This is required for neuroprosthetics, but it also constitutes an important computational paradigm in and of itself
- Any NSF program on neuroscience should also include a neuro-engineering component

# Neuro-Engineering



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- ❑ As Moore's law continues, the semiconductor industry is having increasing difficulty in designing, verifying, and just plain figuring out how to use billions of Transistors
  - ❑ And now we are looking at the possibility of molecular scale computing, which will give us trillions of devices, significantly aggravating all these problems
  - ❑ We still have not solved the problems of Intelligent Computing - in spite of phenomenal increases in processor speed and memory capacity, true machine intelligence still eludes us
  - ❑ And we are out of ideas, neither AI, ANNs (artificial neural networks), Fuzzy Logic, nor Bayesian networks have yet enabled robust solutions
  - ❑ The neural computation paradigm is the only existence proof we have - it has much to offer here as well