

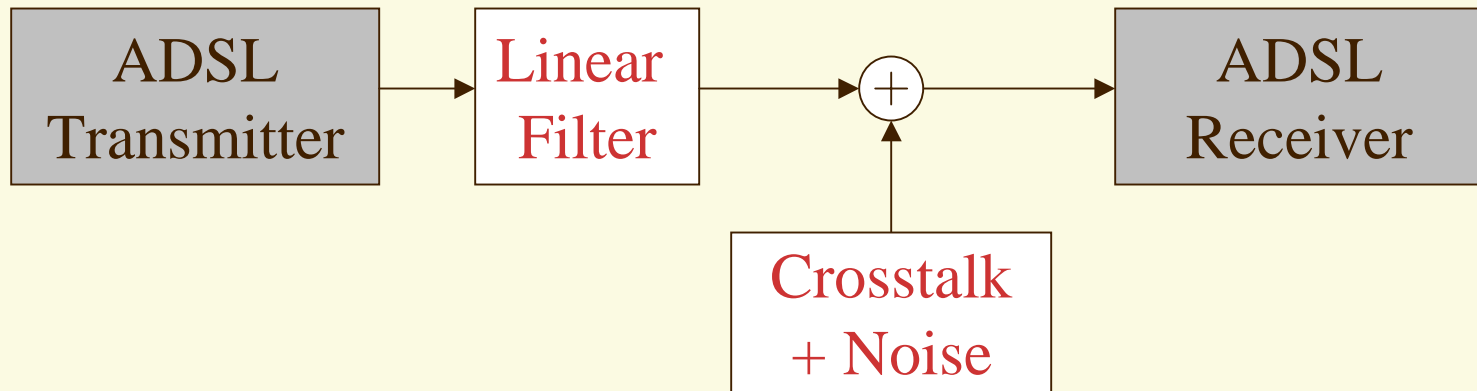
# Simulation and Modeling of an ADSL Modem - Channel Model and Receiver Initialization

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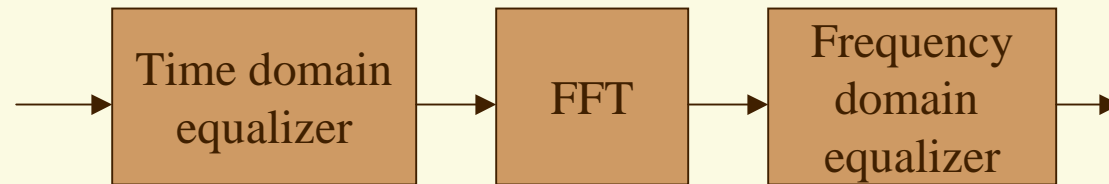
# Channel Model



- ✓ Model transmission over copper cable
  - Linear shift invariant (FIR) filter (~100 taps)
  - Crosstalk - additive colored noise
- ✓ Synchronous data flow (SDF)

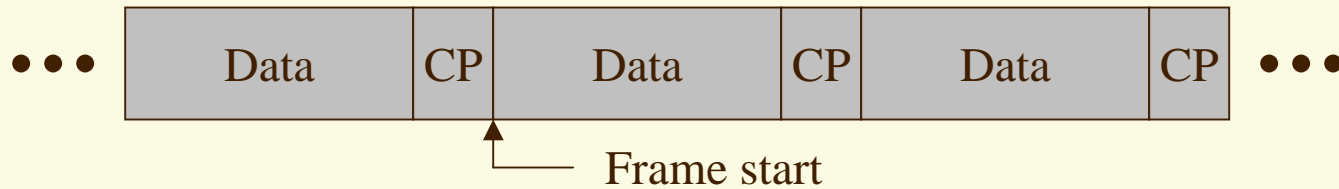
# Receiver Initialization

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- ✓ Channel and signal to noise ratio estimation
- ✓ Initializing channel equalizers
  - Time domain equalizer (FIR filter)
  - Frequency domain equalizer
  - Delay
- ✓ SDF blocks driven by finite state machines

# Receiver Initialization



- ✓ Synchronization to determine
  - Sampling instants
  - Frame boundaries
- ✓ Synchronization derived from
  - Initialization data sequences
  - Pilot signal
  - Synchronization frame

# Proposed Work

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- ✓ Channel model
  - cable lengths and type, bridge taps, disturbers
- ✓ Implement receiver initialization
  - Capacity maximizing equalizer
- ✓ Synchronization
  - Phase locked loop
- ✓ HP EESof design environment