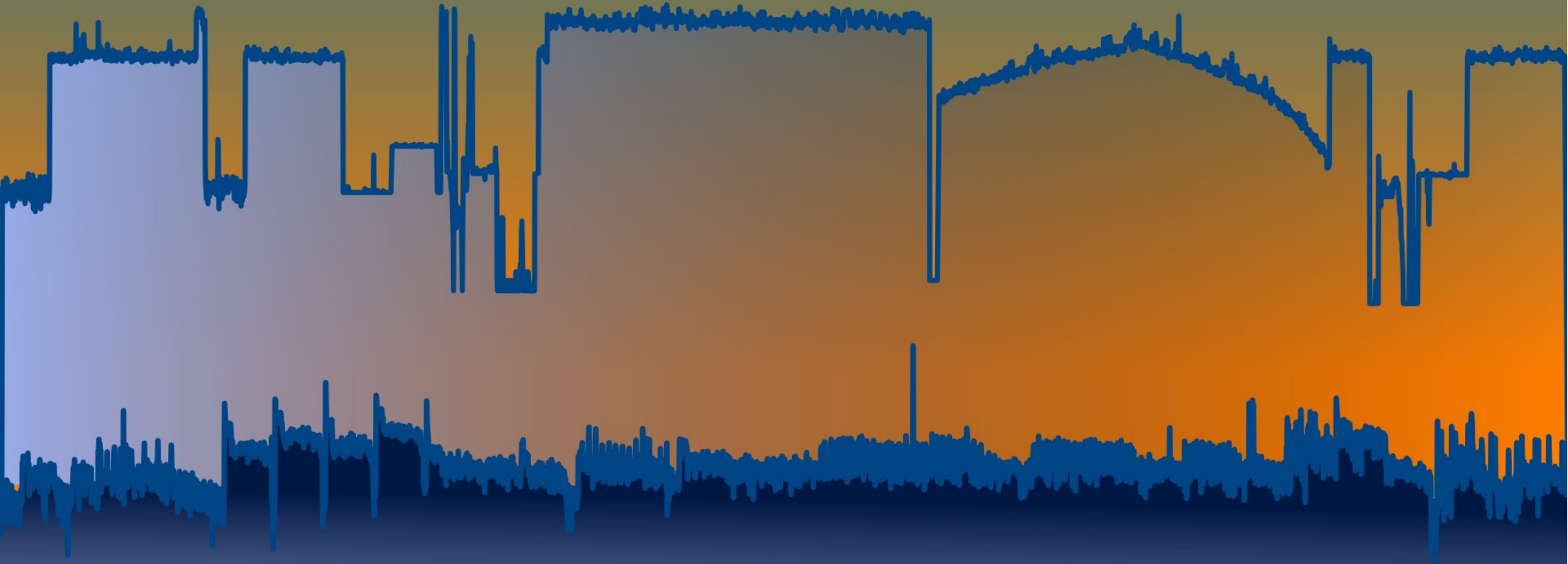


In Carch Xi UCY group



Philippos Papaphilippou

# General

- Learned about CPU caches through books and papers
- Explored Static Replacement Policies
- Made a simple cache simulator in C for 5 static replacement policies (Random, FIFO, LRU, LIP, BIP)
- Made animations for Random and LRU
- Learned a scripting language to validate results and manipulate data easily (Python)
- Explored adaptive replacement policies (DIP, DRRIP and others)
- Made presentations in the group

# Adaptive replacement policies

- Wrote cache replacement modules for sim-alpha to explore **DRRIP** (Dynamic Re-Reference Interval Prediction Replacement Policy) and variations
- Variations
  - Per set monitors and counters instead of few dedicated and global
    - Counters with variable size from preprocessed data
  - Policy variations (Frequency promotion for BRRIP and others)
- Used condor to get results (IPC and hit rates) for Spec2000 benchmarks
- Plotted address traces/ unique blocks going to main memory/ LLC/ set to find evidence and inspiration for different sets/ region of sets preferring different policies