

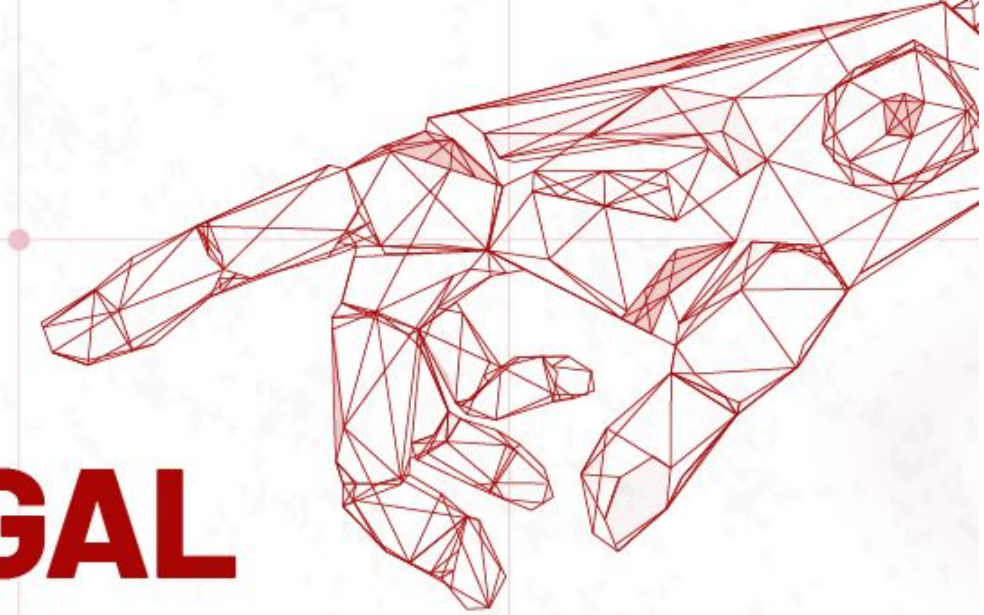
# SyNAPSE: Synthesizing Networking Accelerators using Programmable Switching Equipment

Francisco Pereira

INESC-ID, Instituto Superior Técnico,  
University of Lisbon

CMU PORTUGAL  
SUMMIT 2022

NEW FRONTIERS IN TECH



## Introduction

- Networking community wants more hybrid dataplanes
  - (SmartNICs, programmable switches, FPGAs...)
- Ongoing effort to migrate NFs to hybrid dataplanes

## Key insight

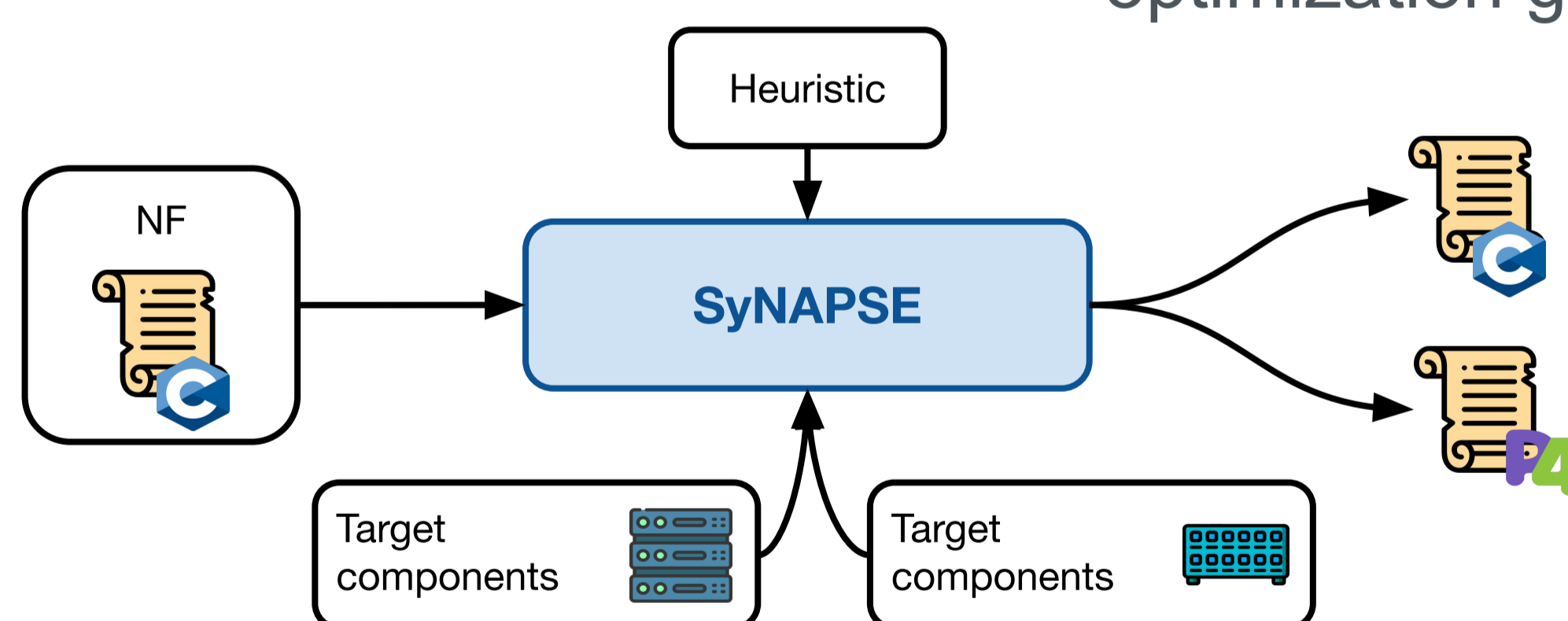
- Like manually offloading, an automatic tool should reason about:
  - Different platforms
  - Different algorithms
  - Different data structures

## Problem

- Current automatic offloading solutions do not consider multiple optimization goals

## What we propose

- SyNAPSE
  - Automatic offloading framework to hybrid dataplanes
  - Component-based synthesis
  - Let the network operation choose the optimization goal



## Open challenges

- Smarter heuristics to automate the performance/resource exploration

## Acknowledgements

This work was supported by the SyNAPSE CMU-Portugal/FCT/MCTES project (CMU/TIC/0083/2019), the uPVN project PTDC/CCI-INF/30340/2017, and INESC-ID via UIDB/50021/2020. F. Pereira is supported by the FCT scholarship PRT/BD/152195/2021.