



# Assoc. Prof. Cyrille Artho: Model-based software analytics ([Modbat](#), [jpf-visual](#))



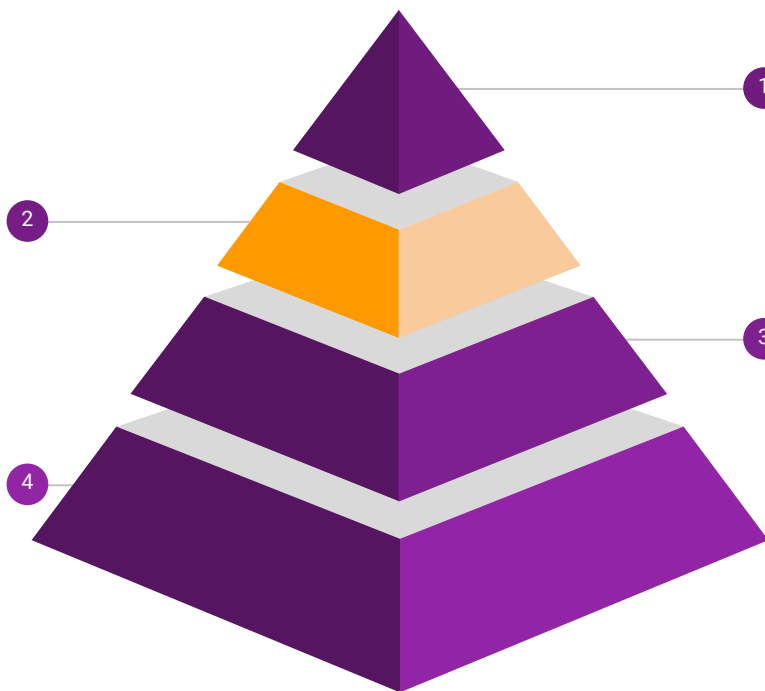
**Model-based testing**

**The sweet spot?**

**Smart automation**

**Random testing**

Automated but "dumb"



**Proofs**

Huge human effort

**Unit testing**

Precise but limited

# Analyze and visualize ([jpf-visual](#), ExA)

The screenshot shows the JPF Shell interface for a program named 'diningPhils.jpf'. The main window displays a visual timeline of thread execution. The timeline is organized into columns for different threads: 'main 0', 'Thread-1 1', 'Thread-2 2', 'Thread-3 3', 'Thread-4 4', and 'Thread-5 5'. The vertical axis represents time, with intervals from 0-12 to 21-22. The main thread (main 0) starts at time 0 and executes a series of 'p.start()' calls. The other threads (Thread-1 to Thread-5) are shown as horizontal bars representing their execution periods. The bars for Thread-1 to Thread-5 are nested within the execution period of the main thread, indicating that they are spawned by the main thread. The bars for Thread-1 to Thread-5 are labeled with 'synchronized (left) {' and 'synchronized (right) {' blocks, suggesting that they are synchronized with the main thread. The interface also includes a sidebar with filters for 'wait/notify', 'thread start/join', and '(un)lock: DiningPhil.Fork'. The top of the window shows a menu bar with options like 'Properties', 'Config', 'Site', 'Report', 'Test Output', 'Verify Output', 'Logger', and 'Error Trace'.

**What if we find an error but can't explain it?**

Visual analytics to explore logs and reports.

- Google Summer of Code projects
- Software prototypes [ASE2019, JPF2020]
- Ongoing work for HEU proposal

# Applications: TEMOS, SERENE

Smart contracts:  
Assets + info on blockchain

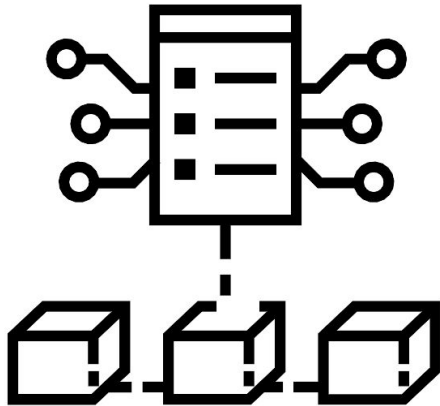


Image by James Fok from the Noun Project

Software-defined networks, middleware:  
Better security and privacy

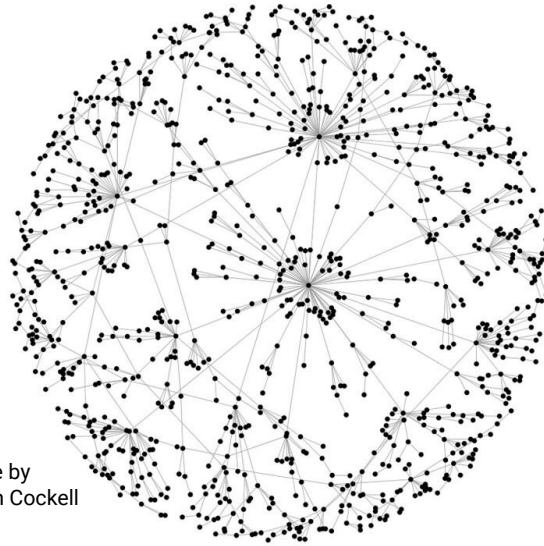


Image by  
Simon Cockell

## Goals:

Robust software and  
software infrastructure

Better development tools

More trust in software

## Contact:

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