University of Luxembourg E. Kieffer

Team meeting 2020



Emmanuel Kieffer, Research Scientist





- Provide advanced research support on optimization/A.I. algorithms
- PhD in Computer Sciences:
 - FNR AFR grant application accepted in 2015
 - Mathematical modelling and Game Theory :
 - Bi-level optimization ⇔ extension of Stackelberg games
 - Multi-levels: Finding a valid solution is NP-hard
 - Solution: "Learn to optimize", Al-assisted design of heuristics
- Research interests: mathematical optimization, machine learning, evolutionary computing



HPC activities



- Assist sysadmins after V. Plugaru left:
 - Helping for the UL HPC software set 2019b
 - Helping for UL HPC documentation
 - Automatic Reporting for PI
 - Gitlab ticket system for user registration (account creation)
 - ...
- HPC school:
 - Singularity container: https://ulhpc-tutorials.readthedocs.io/en/latest/containers/singularity/
 - Advanced Distributed Python: https://ulhpc-tutorials.readthedocs.io/en/latest/python/advanced

Teaching activities



- Master in Information and Computer Sciences (MICS):
 - Mathematical Modelling
 - Introduction to Evolutionary Computing
- Bachelor in Computer Science (BICS):
 - Alessio Winter 2019: Kmeans implementation
 - Licina Spring 2020: Flowers recognition with PyTorch/FastAl
 - Sena Spring 2021:
- Tutor for the Optimization course (MICS 2nd semester):
 - EVOAUTOML: Grammar-evolution of DNN



Research activities



- Help writing some proposals:
 - SPECIES
 - HPSEEK
- Working on "Learning to optimize"
- Submitted and accepted projects:
 - SLICES (submitted)
 - STAIRS (accepted)



Research activities: SLICES





- ESFRI Roadmap 2021 application
- Eligibility for dedicated European funding to develop a novel RI
- Uni.lu will be a core partner representing Luxembourg
- SLICES will be built on top of existing smaller labs, RI (SILECS)

Preparatory Phase, business & construction plan. site construction and deployment of organisation political and financial support secured, data and legal entity, recruitment, IPR & innovation policy & data management, cost book plan. policies, operation and upgrade plan, legal entity identification secure funding for operation design study, business case, political and frontier research results, services to scientific financial support obtained, common community, outreach, continuous upgrade of access policy, top-level breakdown of instrumentation and methods, political and costs, governance and HR policy financial support for long-term operation concept screening, consortium formation, e.g. dissolution, dismantling of facilities and access policy and funding concept. resurrection of site, reuse, merger of operation scientific and project leadership and organisation, or major upgrade

Research activities: SLICES





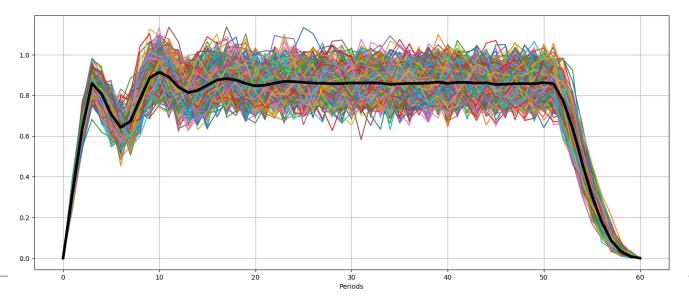
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Research activities: STAREBEI





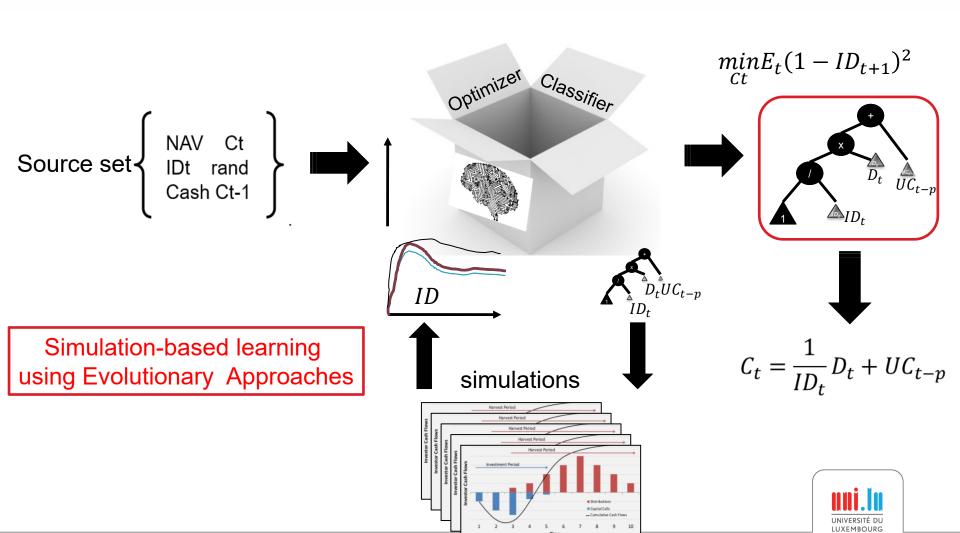
- STAREBEI project accepted
 - Short-term project providing a grant to a young researcher
 - UL tutor: Prof. Bouvry
 - EIB tutor: Dr. Lucius
- "Sustainable and Trustworthy AI Recommitment System (STAIRS)"





Al-assisted rules generation





Thank you for your attention

