

LIACS: Who – What – How

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May 24, 2019



Universiteit
Leiden

Bij ons leer je de wereld kennen

LIACS:

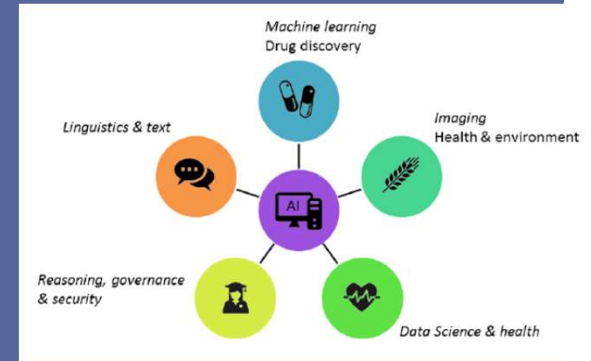
Who & What: Leiden Institute of Advanced Computer Science

- Automatic Machine Learning
 - Algorithm Selection and Algorithm Configuration
 - Programming by Optimization
 - Evolutionary Computation and Genetic Algorithms
 - Nonlinear Global Optimization and Multi-Objective Decision Support
 - Natural Computing
 - Data Science and Data Driven Modeling
 - Text Analytics and Natural Language Processing
 - Pattern Mining
 - Reinforcement Learning and Games
 - Visualization
 - Spatiotemporal Data Analytics
 - Image Retrieval
 - Deep Learning for Image Classification and Heterogeneous Data
 - High Performance Computing for Large-Scale Data Analytics
- Holger Hoos
- Thomas Bäck
Michael Emmerich
- Wessel Kraaij
Aske Plaat
- Aske Plaat
- Fons Verbeek
Michael Lew
- Harry Wijshoff

LIACS:

How:

- Application of existing expertise / algorithms in the areas of SAILS partners
 - FWN, FdR, FSW, FGGA, FGW, LUMC, FdA
- Develop new, enhanced AI algorithms for problem solving in such application domains
- Close collaborations
- Joint activities in terms of
 - Publications, seminars, outreach
 - Grant proposals
 - Collaborations with external partners



```
19 template<typename T>
20 unsigned int levenshtein(const vector<T> & s1, const vector<T> & s2) {
21     const size_t len1 = s1.size(), len2 = s2.size();
22     vector<unsigned int> col(len2+1), prevCol(len2+1);
23     for (unsigned int i = 0; i < len1; i++) {
24         prevCol[i] = i;
25         for (unsigned int j = 0; j < len2; j++) {
26             col[j] = i + 1;
27             for (unsigned int k = 0; k < len2; k++) {
28                 col[k+1] = std::min( std::min(prevCol[k] + j + 1, col[j] +
29                     prevCol[j] + 1) + 1, col[k] + 1);
30             }
31             col.swap(prevCol);
32         }
33     }
34     return prevCol[len2];
35 }
```

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TATA STEEL



D:WAVE
The Quantum Computing Company™



QUALOGY

DAF

GOMECYSYS
fuel saving engine technology

Optimization:

- Evolutionary Computation
- Optimization of Optimizers
- Optimizer Configuration
- Efficient Global Optimization
- Bayesian Global Optimization
- Quantum Computers for Optimization
- (Multi-Objective Optimization)

Data Science:

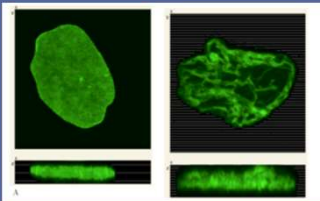
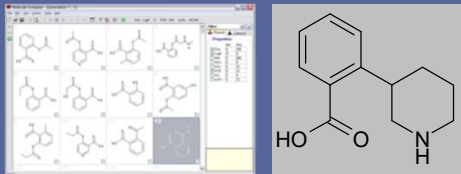
- Supervised Learning
- Gaussian Processes
- (Fuzzy) Cluster Kriging
- Imputation Methods
- Automatic data-driven modeling with RF, SVM, decision trees ...

Machine Learning:

- Automatically optimizing deep networks
- Learning rules from data
- Anomaly detection

My interest:

- Open for collaborations in many areas
- Some experience in life science related topics



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Optimization:

- Evolutionary Computation
- Optimization of Optimizers
- Optimizer Configuration
- Efficient Clustering
- Bayesian Optimization
- ...

Data Science:

- Supervised Learning

Machine Learning:

- Automatically optimizing deep

From Data and Models to
Optimal Decisions

- Some experience in the science related topics



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