# Exploitable Results by Third Parties

ITEA3 14035 Reflexion

React to Effects Fast by Learning, Evaluation, and eXtracted InformatiON

Project details

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| Name: Simulation-driven Machine Learning |
| Input(s): | Main feature(s) | Output(s): |
| * Mechatronic system with too little or no data to do data science or machine learning.
 | * Data synthesis through simulation
* Connection of simulation environment, simulation driver and data science platform.
 | * ML model
 |
| Unique Selling Proposition(s): | * Data is generated rather than collected, therefore the data can exist before the mechatronic system is realized.
* For condition monitoring it is expensive and also not intended to collect data of all conditions, especially the failure ones. The methods allow data generation in this critical area.
* Knowledge of the engineer is going into the generation of the data. Therefore, prior knowledge/generalization is already added which makes validation over several data sets more successful. See: C. Sobie, C. Freitas, and M. Nicolai (2017) *Simulation-driven machine learning: Bearing fault classification*. Mechanical Systems and Signal Processing
 |
| Integration constraint(s): | * JupyterLab
* Simcenter Amesim
 |
| Intended user(s): | * Engineers,
* Researcher
* Data Scientists
 |
| Provider: | * Siemens Industry Software NV
 |
| Contact point: | * Mike Nicolai - Mike.Nicolai@siemens.com
 |
| Condition(s) for reuse: | * License and/or Service Project
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|  | *Latest update: 2018-10-25* |

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| Name: Unsupervised Learning Document Processing Pipeline |
| Input(s): | Main feature(s) | Output(s): |
| * A large number of digital documents (DOC, PDF, etc.)
* Additional Structural data relating to those documents
 | * Automatic parsing and extraction of Text and Paragraphs
* Document Clustering to help quickly sift through large numbers of documents without reading them all
 | * Document Map with 2D similarity
* Paragraph Map with topical zones
 |
| Unique Selling Proposition(s): | * Quickly scan and index complex document collections without pre-sorting or tagging the data.
* Does not require set up of ontologies to get started
* Speeds up know-your-customer tasks
 |
| Integration constraint(s): | * Requires a microservice based infrastructure (Docker)
* Benefits from a visualization layer to analyze the embedding results
 |
| Intended user(s): | * Compliance officers, Document analysts, Insurance and Finance subject matter experts, Controllers
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| Provider: | * SynerScope
 |
| Contact point: | * Jan-Kees.Buenen@synerscope.com
 |
| Condition(s) for reuse: | * Commercial license is available
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|  | *Latest update: 2018-10-17* |

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| Name: Human-machine Framework for System Verification Testing based on Log File Classification |
| Input(s): | Main feature(s) | Output(s): |
| * Log files of system usage actions (text / keywords)
 | * Partitioning of log files into clusters based on similarity
* Categorization of clusters into user-defined labels, e.g. “normal/exceptional behaviour”
* Classification of log files in accordance with the user-defined labels
* Web-browser interface to allow experts communicate with the machine learning algorithms
* Expert feedback to update existing models.
 | * Usage clusters
* Usage models (probability graphs)
* Labelled logs
 |
| Unique Selling Proposition(s): | * Automatic retrieval of usage types from data
* Provides insights in normal / exceptional system behavior
* Mechanism in place for the expert in the loop via web-browser interface
* Continuously adapts to represent current usage types
 |
| Integration constraint(s): | * Python 3.6
* Flask 1.0.2
* React 16.5.2
 |
| Intended user(s): | * System and Test Designers
 |
| Provider: | * Embedded Systems Innovation by TNO (ESI)

[www.esi.nl](http://www.esi.nl) |
| Contact point: | * Bas Huijbrechts – bas.huijbrechts@tno.nl
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| Condition(s) for reuse: | * Free to use
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|  | *Latest update: 2018-10-18* |

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| Name: Semantic Graph Extraction from Relevant Domain Knowledge Documentation |
| Input(s): | Main feature(s) | Output(s): |
| * Dataset of domain specific documents
 | * Document classification into relevant/not relevant
* Semantic graph construction
 | * Labelled documents into relevant/not relevant
* Semantic graphs
 |
| Unique Selling Proposition(s): | * User-assisted classification of documents
* Continuous adaptation of classifier to represent relevant/not relevant documents
* Automatic construction of semantic graphs from documentation
 |
| Integration constraint(s): | * Python 3.6
* Gensim’s doc2vec library
* Sci-kit learn library
* Standford CoreNLP 3.9.1
* hearst\_patterns\_python
* Neo4j 3.5
* ImageMagick 7.0
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| Intended user(s): | * Domain experts of high-tech industries
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| Provider: | * Embedded Systems Innovation by TNO (ESI)

[www.esi.nl](http://www.esi.nl)  |
| Contact point: | * Bas Huijbrechts – bas.huijbrechts@tno.nl
 |
| Condition(s) for reuse: | * Free to use
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|  | *Latest update: 2018-10-02* |

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| Name: Semantic-based Jupyter Notebook Search Engine |
| Input(s): | Main feature(s) | Output(s): |
| * Repositories of Jupyter Notebooks
* Semantic Graphs of domain knowledge (based on Semantic Graph Extraction from Relevant Domain Knowledge Documentation)
 | * Multi-dimensional search (text, semantic graph, data structure)
* Search results adapted to user’s feedback
 | * Jupyter Notebooks
 |
| Unique Selling Proposition(s): | * Leverages on semantic graphs to expand queries to encompass broader, domain-specific concepts
* Automatically adapts its search strategy based on user’s feedback
 |
| Integration constraint(s): | * Python 3.6
* Semantic Graphs (see form above)
* Flask 1.0
* React 16.5.2
* Neo4j 3.5
* Elasticsearch 6.4.1
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| Intended user(s): | * Domain experts of high-tech systems
 |
| Provider: | * Embedded Systems Innovation by TNO (TNO-ESI)

[www.esi.nl](http://www.esi.nl) |
| Contact point: | * Bas Huijbrechts – bas.huijbrechts@tno.nl
 |
| Condition(s) for reuse: | * Free to use
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|  | *Latest update: 2018-10-02* |

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| Name: Yanomaly |
| Input(s): | Main feature(s) | Output(s): |
| * Text log files
* Numeric data
 | * Unsupervised AI based anomaly detection
 | * Anomaly scores and root cause analysis scores
 |
| Unique Selling Proposition(s): | * Capability of processing both text logs and numeric data
* Capability of processing multivariate data generated by complex systems
* Unsupervised training: no need for annotated examples of known anomalies
 |
| Integration constraint(s): | * Runs on Ubuntu Linux in docker containers
* Connectors available with REST API, OSI PI, MQTT
 |
| Intended user(s): | * Service desk personnel
* Maintenance personnel
* Plant operators
 |
| Provider: | * Yazzoom
 |
| Contact point: | * David Verstraeten, engineering manager and partner, David.verstraeten@yazzoom.com
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| Condition(s) for reuse: | * Commercial product with yearly or perpetual software license fee
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|  | *Latest update: 2018-10-22* |

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| Name: Distributed Plugin Adapters |
| Input(s): | Main feature(s) | Output(s): |
| * System to be tested
 | * Distributed platform and implementation independent way to connect to systems (directly or over a network).
 | * Tested system
 |
| Unique Selling Proposition(s): | * Platform independent
* Implementation independent
* Distributed
* Potential testing standard
 |
| Integration constraint(s): | * Google protocol buffers (open source)
* Websockets (web-standard)
 |
| Intended user(s): | * Testers and automated testing tools
 |
| Provider: | * Axini B.V.
 |
| Contact point: | * Machiel van der Bijl (vdbijl@axini.com)
 |
| Condition(s) for reuse: | * Axini Licence
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|  | *Latest update: 2018-10-29* |

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| Name: Safe Evaluation Sandbox |
| Input(s): | Main feature(s) | Output(s): |
| * Code with potential side-effects
 | * Fast and secure sandbox to execute code with potential malicious side-effects
 | * Safe execution within safety parameters or an error
 |
| Unique Selling Proposition(s): | * Linux platform
* Fast
* Implementation independent
 |
| Integration constraint(s): | * Linux
 |
| Intended user(s): | * Creators of tools that allow arbitrary code execution
 |
| Provider: | * Axini B.V.
 |
| Contact point: | * Machiel van der Bijl (vdbijl@axini.com)
 |
| Condition(s) for reuse: | * MIT license
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|  | *Latest update: 2018-10-29* |