From: Philip Weber
Sent: 24 May 2024 16:24
To: Philip Weber
Subject: Process mining sources

Hi,

Below are some potentially useful readings and other materials to get started with process mining. You should also start doing your own literature searching, e.g. via https://www.scopus.com/ - we should discuss this.

Introductions to process mining

ProcessMining.org (https://www.processmining.org/) contains a broad introduction to process mining, perhaps more from an industry perspective. It's not the easiest website to navigate.

This e-book contains mostly case studies, but ch21 outlines some current challenges:

- Reinkemeyer L. (2020). Process Mining in Action: Principles, Use Cases and Outlook. Springer Nature, Switzerland. DOI: 10.1007/978-3-030-40172-6.

This paper looks like a good, relatively recent, but dense, review of process discovery algorithms:

- Augusto A., Conforti R., Dumas M., La Rosa M., Maggi F.M., Marrella A., Mecella M., Soo A. (2019). Automated Discovery of Process Models from Event Logs: Review and Benchmark. IEEE Transactions on Knowledge and Data Engineering, 31(4):686-705. DOI: 10.1109/TKDE.2018.2841877.

IEEE Taskforce (https://www.tf-pm.org/) in process mining: case studies, videos, event logs (datasets) mainly from past challenges.

Reviews of domain-driven process mining

- Schuster D., van Zelst S.J., van der Aalst W.M.P. (2022). Utilizing domain knowledge in data-driven process discovery: A literature review. Computers in Industry, 137:103612. DOI: 10.1016]/j.compind.2022.103612

Training

- Online book and tutorial (https://fluxicon.com/book/read/) from Fluxicon: See also their academic material (https://fluxicon.com/academic/material/).
- PM4PY (https://pm4py.fit.fraunhofer.de/docs) documentation is quite a good introduction (not as good as it used to be).
- Relatively short MOOC (https://www.futurelearn.com/courses/process-mining-healthcare) on process mining in healthcare. This is a few years old now:

- Celonis (https://www.celonis.com/) also have a lot of training material: perhaps too time-consuming.

Conferences

Sources for the latest papers:

- BPM conference (https://bpm-conference.org/): historically, many of the process mining papers were published here.
- International Conference on Process Mining (https://icpmconference.org/2023/proceedings/): established from 2019.

Datasets

IEEE Taskforce (https://www.tf-pm.org/resources/logs):

- logs from recent process mining challenges - but these appear to be simulated from hand-crafted models - and also past real-life challenges with business context - I think we could use the latter for combining knowledge with process mining.

Tools
- ProM (http://www.promtools.org/doku.php?id=docs:objects:event_log): The original and de facto open-source research framework. See also PromLite.
- Fluxicon Disco (https://fluxicon.com/disco/): Slick and fast commercial tool evolving out of the original academic group who developed process mining. Academic licences available (https://fluxicon.com/academic/).
- Celonis (https://www.celonis.com/): Bigger tool combining process mining with machine learning and data analytics dashboards.
- Pm4Py (https://pm4py.fit.fraunhofer.de/): Process mining module for Python. See also the PmTk GUI.

regards, Phil

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