Technische Universität Berlin

Campus Charlottenburg

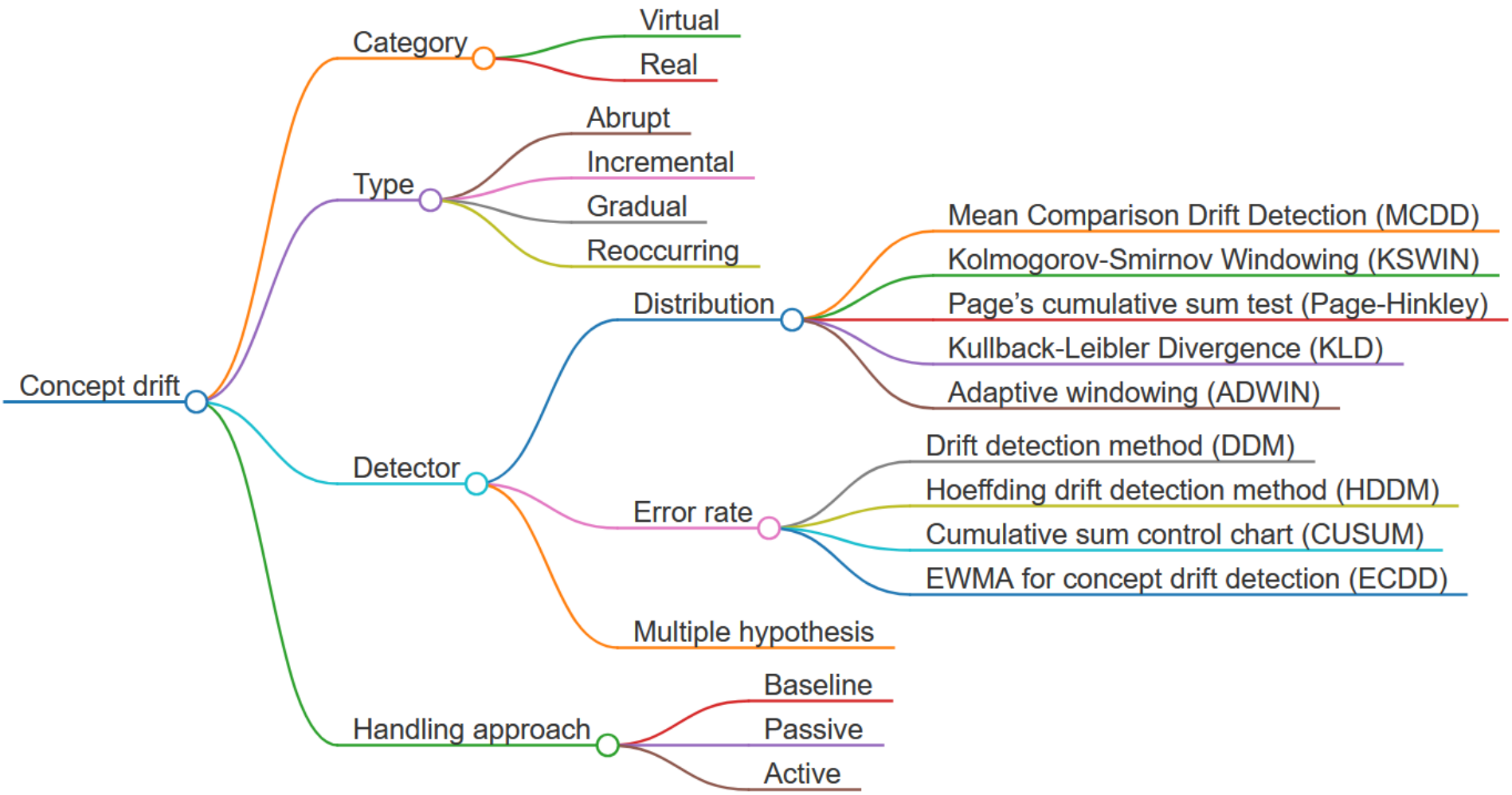
CEFET/RJ

CONCEPT DRIFT (EVENT DETECTION)

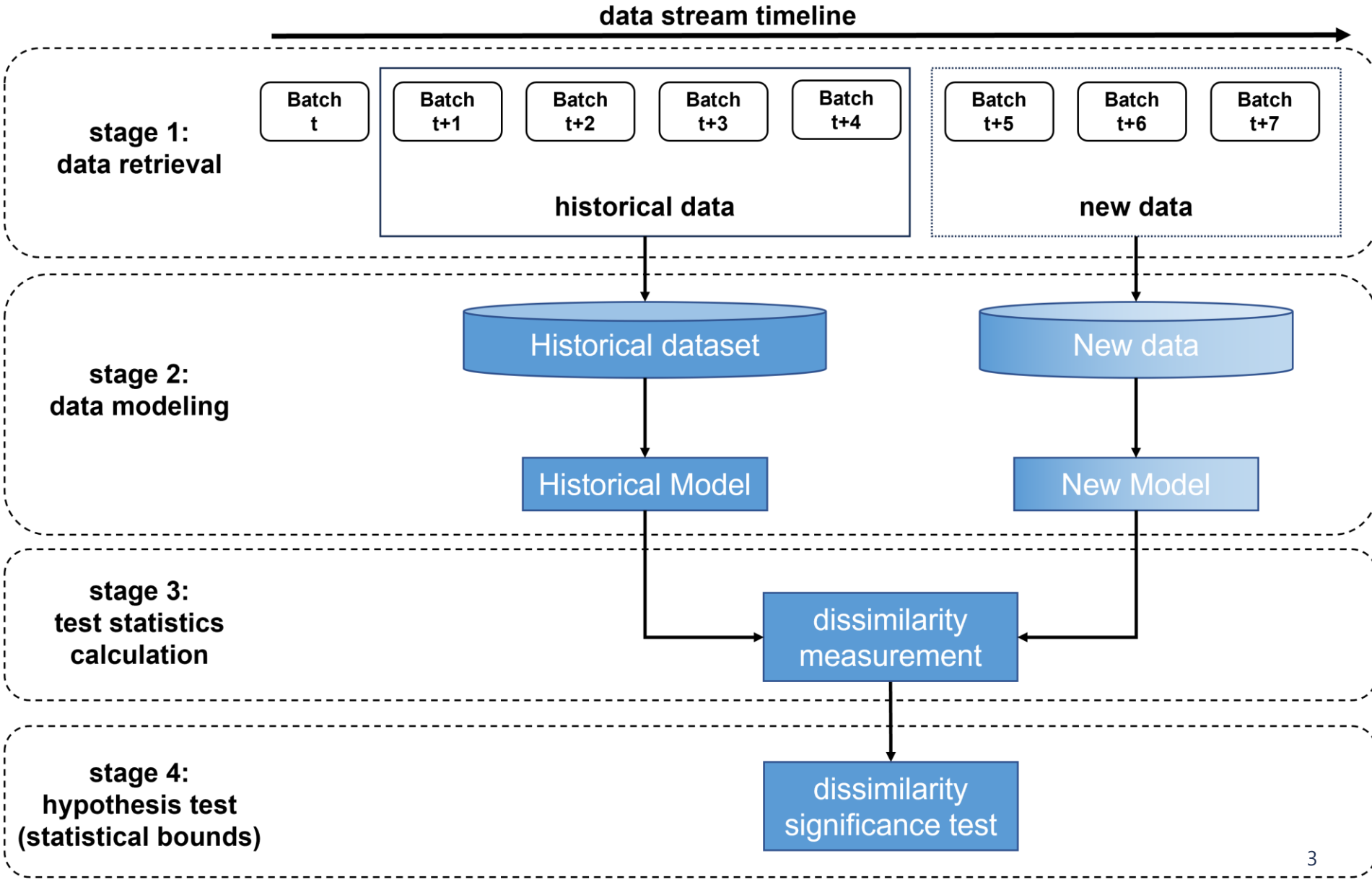
LNCC

Eduardo Ogasawara
eogasawara@ieee.org
https://eic.cefet-rj.br/~eogasawara

Concept drift overview

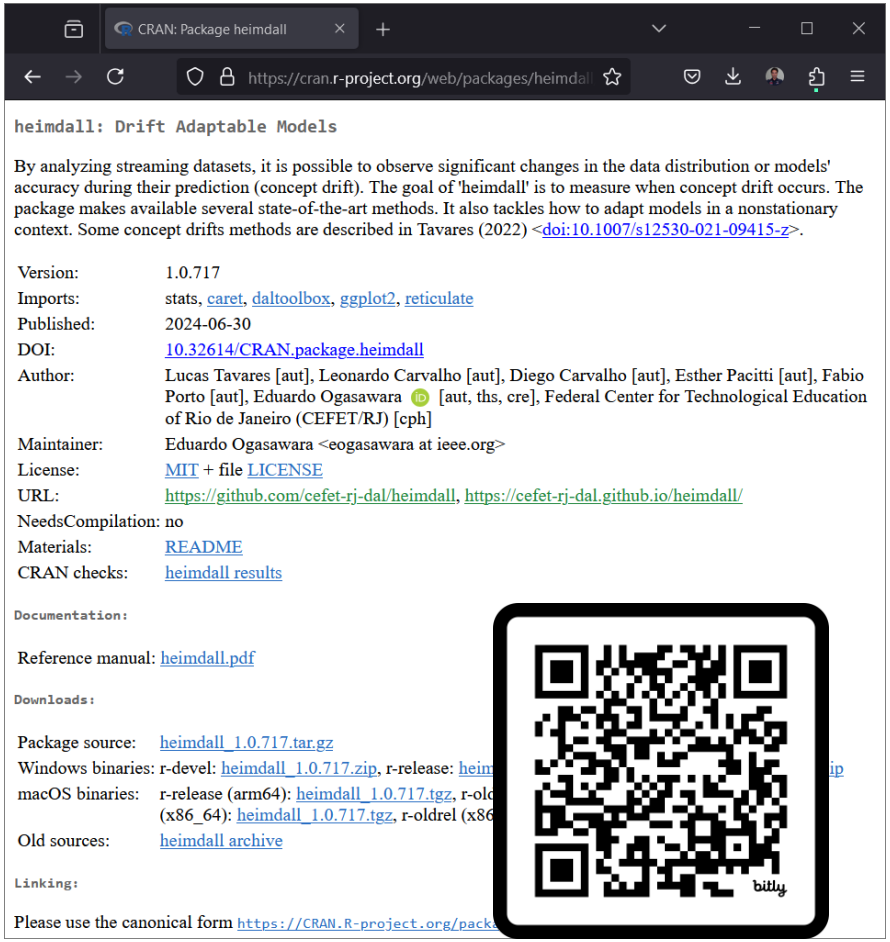


Detecting changes



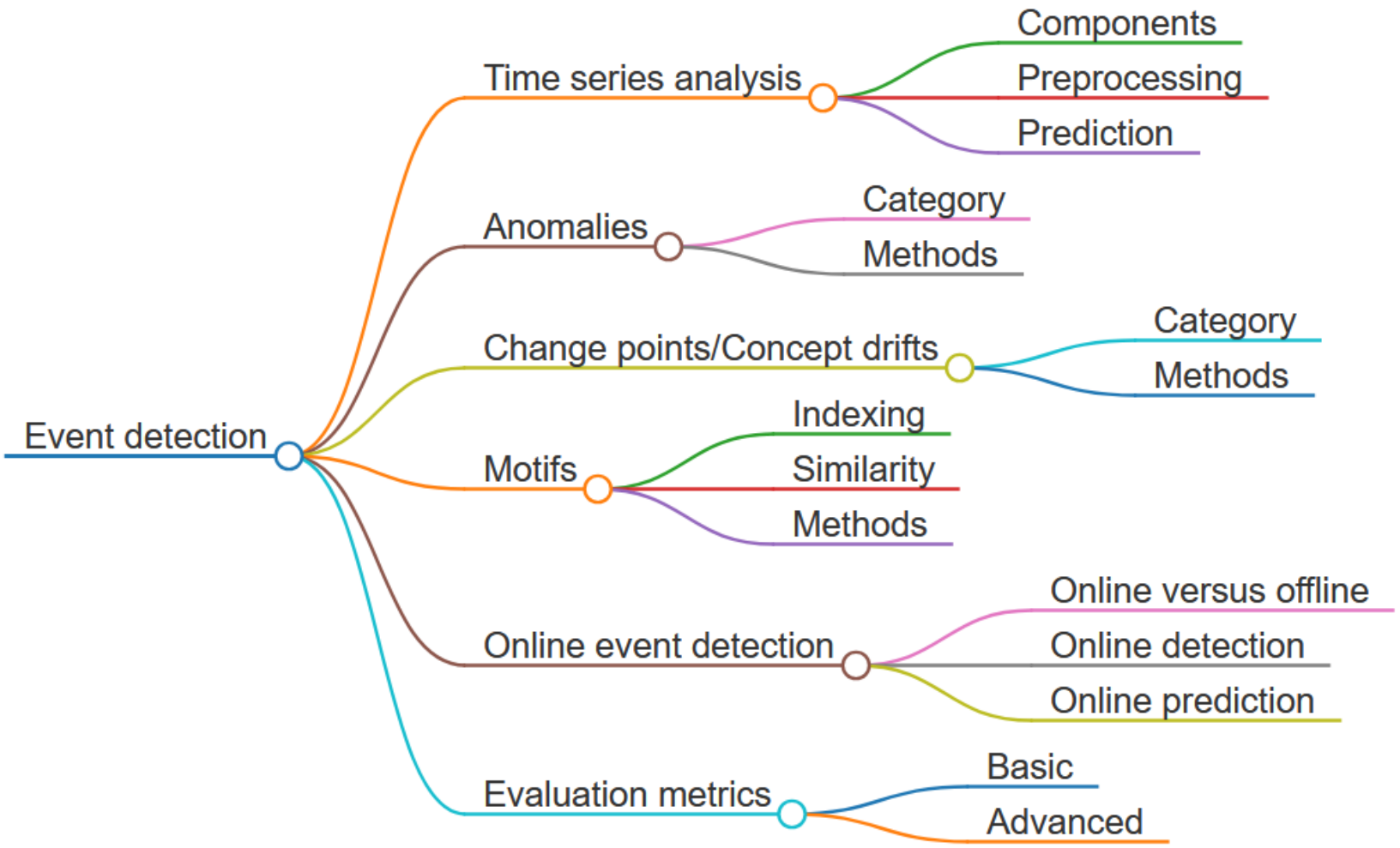
Heimdall: Drift Adaptable Models

- Concept drift
  - Error-based methods
  - Distribution-based methods
  - Model manager explorer
- Properties
  - Uniform Data Model
  - Expansible
    - Based on Algebraic Experimental Line [1,2]
- Inspiration from Sci-Kit Learn
  - Fit()
  - Detection()
- More than ten event detectors
- R Package available at CRAN

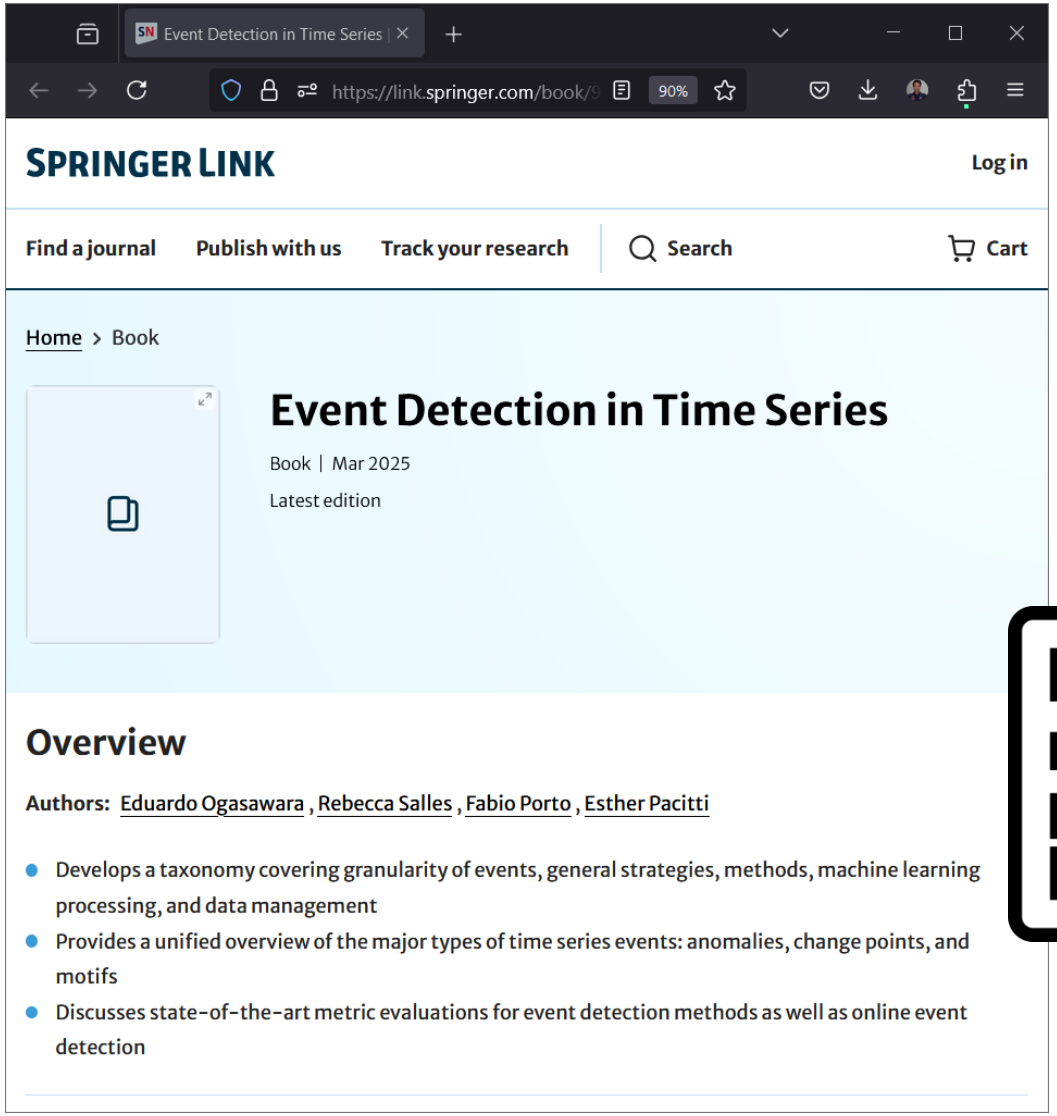


[1] A. Marinho, D. de Oliveira, E. Ogasawara, V. Silva, K. Ocaña, L. Murta, V. Braganholo, and M. Mattoso, "Deriving scientific workflows from algebraic experiment lines: A practical approach," Future Generation Computer Systems, vol. 68. pp. 111–127, 2017. doi: 10.1016/j.future.2016.08.016.
[2] E. Ogasawara, D. de Oliveira, P. Valduriez, J. Dias, F. Porto, and M. Mattoso, "An algebraic approach for data-centric scientific workflows," Proceedings of the VLDB Endowment, vol. 4, no. 12. pp. 1328–1339, 2011.

The General Problem of Event Detection



Event Detection in Time Series



[1] E. Ogasawara, R. Salles, F. Porto, and E. Pacitti, Event Detection in Time Series. in Synthesis Lectures on Data Management. Springer Cham: Springer International Publishing, 2025.

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