

# Normative models of change detection

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# Outline

## Overview

Bayesian online changepoint detection (Adams and Mackay 2007)

## Examples

# Topic

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## Examples

# Change detection

# Types of change detection

Offline:

- ▶ you have the entire dataset in your hands

Online:

- ▶ you receive new data over time
- ▶ often further divided into
  - ▶ batch detection: detect changes in batches of incoming data
  - ▶ sequential detection: detect changes with each new data point

# Types of models for change detection

## Frequentist methods

- ▶ Changepoint model (Hawkins, Qiu, Kang 2003)

## Bayesian methods

- ▶ Bayesian online changepoint detection (Adams and Mackay 2007)
- ▶ Adaptive Sequential Bayesian Change Point Detection (Turner, Saatci, Rasmussen 2009)

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# Bayesian online change point detection (Adams and Mackay 2007)

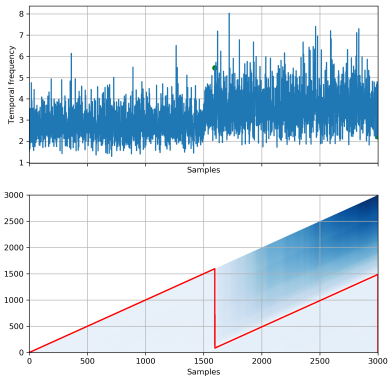


Figure 1: Single change point, two Gaussians with different means but equal variance