2nd year review

17th June 2011

Outline of the 2nd year review.

1 Introduction

Short summary of the project, main ideas and motivation. The main direction of the work since September 2010.

2 Literature

(Underlined items have been already written or mentioned in the 1st year review.)

- Microscopy (Literature review - April 2010) + updates of the literature (microscopy, QD, NMF) mentioned in the 1st year review.

- NMF (1st year report -August 2010) + updates + connection to the Richardson - Lucy deconvolution (RLdecNotes - Sep 2010)

- GaP + DCA (notes on DCA - February 2011) - Gamma-Poisson model (Canny 2004 paper) and variational approach discussion (Buntine & Jakulin 2006 paper).

- (?) Time series information (Molgedey & Schuster 1994)

- Fundamental resolution limit (Ram 2006 paper - mentioned in the Literature review - April 2010), Cramer-Rao bound & Fisher information matrix.

3 Algorithms

- Variational GaP algorithm implementation (Buntine & Jakulin).

4 Results + discussion

4.1 Theory (FREM)

- Limits of the resolution for blinking sources. Is there any advantage of blinking? Does it allow better separation then the static sources?

4.2 Simulations

- Determination of the number of sources - BIC, variational - likelihood lower bound, correlations in residuals

- Simulated sample with spatial structure.

- (?) Time series

4.3 Real Data

- Out of focus PSFs

- Real sample with structure & SNARE (? Colin & Rory)

5 Conclusion and future work

Direction of the future work. Experimental work. Publications (?).