TODO

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I would like to dedicate this thesis to my family and my close friends ...

Ch:1 Intro

1. Bring the brief goal at the beginning
2. Affymatrix image

Ch:2 Pro TFA

1. Update draft
2. Markov property in appendix

Ch:3 GP

1. Add Brownian kernel : http://www.biostat.umn.edu/ baolin/teaching/probmods/ipm-ch10.html
2. Add Cosine kernel
3. GP properties: Add multiplication

Ch:4 TFA GP

1. Update draft

Ch:5 Clustering

1. Mitochondria
2. explanation of Pathway analysis
3. include description of table and figure
4. describe Figure C.elegans

Ch:6 Conclusion

1. Write

Appendix

1. SVD
2. PCA
3. GP property - Dei 10/166 Gir04.pdf 127
4. Markov property in appendix for Chapter 2
5. http://www.robots.ox.ac.uk/ mebden/reports/GPtutorial.pdf
6. ThesisMalte_[0].pdf

Overall

1. Acknowledgement
2. Check Figure/Equation font
3. Check Figure explanation
4. Notation as
5. UCL-b2 Cholesky decompositions
6. Bayesian parametric modelling Gir04.pdf 24
7. Transcriptome http://www.nature.com/scitable/definition/transcriptome-296

Machine learning is a joint field of artificial intelligence and modern statistics, mostly focused on the design and development of models, algorithms and techniques that allow computers to extract information automatically by some learning process from data. The structure learned from data can be described by a statistical model. Gaussian process models are well known families of stochastic processes for modelling data observed over time, space or both. Data modelling with Gaussian process is the state-of-the-art technique in the wider community, from robotics ([**?**]) to genomics ([**?**]), from astronomy ([**?**]) to meteorology ([**?**]). Gaussian processes models are non-parametric, which means the models are developed on an infinite-dimensional parameter space. For a particular learning problem, the parameter space is typically learnt as the set of possible solutions. There are different ways to learn functions. Probabilistic inference is one of the elegant and widely accepted way among them. In the field of machine learning regression is a supervised learning problem, while clustering is an unsupervised learning problem. Regression task is related with making predictions of a continuous output variable at any desired input location, given an input-output training set. Clustering task group a set of observations into subsets (also known as clusters) so that observations in the same cluster shows similarity in some specific sense. Here we set two generic goals for this thesis