

# Knowledge-Based Control Systems

## Changelog

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Cognitive Robotics

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# 1 Introduction

This document keeps track of the changes/improvements between various versions of the lecture notes and the solutions to the exercises.

If you find mistakes, or if you have suggestions for improving the lecture notes or solutions, please send an email to [J.Kober@tudelft.nl](mailto:J.Kober@tudelft.nl).

Small rewards in the final grade of the course will be granted only to the first student that notifies a mistake, or only to the first that proposes a good suggestion for an answer.



## 2 Lecture Notes

**19-04-2018**

- Corrected a few typos.

**17-04-2018**

- Fixed wrong order of dimensions in Q8.2.

**16-04-2018**

- Added questions for Gaussian processes.

**11-04-2018**

- Corrected a few typos.
- Added questions for neural networks.

**05-03-2018**

- Added more detailed links to textbooks for Gaussian processes.

**28-02-2018**

- Marked RL chapters not relevant for exam.

**12-02-2018**

- “Fuzzy Relations” is required for the rest of the course (and hence relevant for the exam)

## 11-02-2018

- Outdated chapter on Artificial Neural Networks replaced by links to textbook.
- Added link to textbook for Gaussian Processes.
- Marked chapters not relevant for exam.
- A number of typographic fixes.

## 19-07-2017

- Section 4.2.1. clarification on strict inequalities.
- Section 7.6.1. corrected indices.
- Unified notation of  $dt$ .
- A number of typographic fixes.

## 15-6-2017

- Section 1.5. updated info on MATLAB licence.
- Appendix B MATLAB highlighting.
- Fixed missing parentheses in Algorithm 4.2.
- Changed notation for “otherwise” in Algorithm 4.1 and 4.2, and adjusted notes in Section 4.3.2.

## 29-3-2017

- $\LaTeX$  fixes resulting in different formatting of references and some changed equation numbers.
- Cleaned up references.
- Unified notation of cardinality in Appendix A.
- Section 6.7. replaced dead link.

## 25-1-2017

- Section 9.4.6. has been rewritten.
- Updated course number and web links.
- New template.
- hyperref for click-able links in the document.

## January 2010

- Original lecture notes.





# 3 Solutions

## 19-04-2018

- Fixed small mistake in Q8.1.
- Improved answer to Q2.3.

## 17-04-2018

- Fixed wrong order of dimensions in Q8.2.

## 16-04-2018

- Added solutions for Gaussian processes questions.

## 11-04-2018

- Added solutions for neural networks questions.

## 14-02-2018

- Small correction in answer Q2.2

## 11-02-2018

- Answer to Q2.7 extended and mistakes fixed.
- Placeholder for questions on Gaussian Processes.
- Outdated questions for Artificial Neural Networks removed.

## 19-07-2017

- Mistake in answer to Q9.2 fixed.
- Improved answers to Q2.2, Q2.3, Q2.6, Q2.7, Q3.3, Q3.6, Q4.2, Q5.1, Q5.2, Q6.4, Q7.1, Q7.4, Q7.5, Q8.2.

### *3 Solutions*

- Draft answers to Q4.1, Q4.4, Q5.3, Q5.4, Q5.5, Q6.3.

### **27-2-2017**

- Added missing identity to Q2.8.

### **25-1-2017**

- Updated Q9.4 to match updated lecture notes.
- New template.

### **8-3-2016**

- Added answers to many questions.

### **12-1-2010**

- Original solutions.