

Practical information

34242 Machine learning techniques for optimization of communication systems

All practical information regarding the course are found in the module: "content/Practical information" folder on DTU Learn

Teachers:

Name	Office	Phone	Email
Lectures:			
Darko Zibar	Bygn. 343 rum 124	61 46 46 88	dazi@dtu.dk
Exercises:			
Darko Zibar	Bygn. 343 rum 124	61 46 46 88	dazi@dtu.dk
Huwei Wang	Bygn. 343 rum 105		huwwa@dtu.dk

Course activities:

The lectures will find place in 343/217

- Lectures will be from 9-11 o'clock
- Assignments and exercises will follow after lectures
- Consultancy hours (help with the exercises) will be from 14:00-16:00

Exam - how to pass the course:

To pass the course, you must hand in four mandatory assignments. For each of the assignments, you must score at least 50%. You can work in groups but the assignments must be handed in individually via DTU Learn. The dates for handing in the assignments are as following:

1. Assignment 1 & 2: 09/01, 23:59
2. Assignment 3: 15/01, 23:59
3. Assignment 4: 24/01, 23:59

Assignments are found under: "Assignments"

Teaching material:

The material covered in the course will be based on:

1. Lecture slides
2. Christopher M. Bishop, Pattern Recognition and Machine Learning, Springer 2006
3. Simon Haykin, Neural Networks and Learning Machines, 2008
4. B. Widrow et al., "The No-Prop algorithm: A new learning algorithm for multilayer neural networks," Neural Networks, volume 37, 2013, pages: 182-188
5. D. Zibar et al., "Inverse system design using machine learning: The Raman Amplifier Case," Journal of Lightwave Technology, vol. 38, no. 4, 2020, pages: 736-753

Course schedule:

Week 1

Monday: 09:00 – 11:00 Lecture 1: Introduction to linear models for regressions 11:00 – 17:00 Problem solving session: Assignment 1
Tuesday: 09:00 – 17:00 Problem solving session: Assignment 1
Wednesday 09:00 – 11:00 Lecture 2: Introduction to nonlinear models and classification 11:00 – 17:00 Problem solving session: Assignment 2
Thursday 09:00 – 17:00 Problem solving session: Assignment 2 Report based on Assignment 1 and 2 must be handed in at 23:59 at the latest
Friday 09:00 – 10:00 Solutions to Assignment 1 & 2 10:00 – 12:00 Data-driven modelling of optical amplifiers 13:00 – 17:00: Assignment 3

Week 2

Monday: 09:00 – 17:00 Problem solving sessions: Assignment 3
Tuesday: 09:00 – 17:00 Problem solving sessions: Assignment 3
Wednesday 09:00 – 11:00 Problem solving session: Assignment 3 Report based on Assignment 3 must be handed in at 23:59 at the latest
Thursday 09:00 – 10:00: Solutions to Assignment 3 10:00 – 12:00 Lecture 4: Linear and nonlinear equalization 11:00 – 17:00 Assignment 4
Friday 09:00 – 17:00 Assignment 4

Week 3

Monday: 09:00 – 17:00 Problem solving sessions: Assignment 4
Tuesday: 09:00 – 17:00 Problem solving sessions: Assignment 4
Wednesday

09:00 – 11:00 Problem solving sessions: Assignment 4

Thursday

09:00 – 11: Assignment 4

Friday

09:00 – 13:00 Assignment 4

Report based on Assignment 4 must be handed in at 12:59 at the latest

13:00 – 14:00: Solutions to Assignment 4

13:00 – 14:00: Guest lecture