Lecture 0: Applied Stochastic Differential Equations Course in 2016

Simo Särkkä

Aalto University, Finland

Course information and materials

- The course homepage with all the materials is at:

  `https://mycourses.aalto.fi/course/view.php?id=15207`

- The Adobe Connect for remote contact session attendance is

  `https://connect.funet.fi/aalto_tut_sde_2016/`

- Students from Aalto University should register via Oodi.
- Students from Tampere University of Technology should contact either *Robert Piché (robert.piche@tut.fi)* or *Simo Särkkä (simo.sarkka@aalto.fi)* for registration information.
- The main course book is
  Simo Särkkä and Arno Solin (2014). Applied Stochastic Differential Equations.
  which is available online at

`https://users.aalto.fi/~ssarkka/course_s2014/sde_course_booklet.pdf`

Course staff and sessions

- Organized jointly in Aalto University & Tampere University of Technology.
- The lectures are delivered as videos.
- Weekly contact sessions are organized in Aalto and TUT in 3.11. - 8.12.:
    - Aalto: Thursdays at 14:15-16:00 in TUAS 1021-1022.
    - TUT: Thursdays at 14:15-16:00 in Sc209.
    - The first session is 3.11.2016.
- The contact sessions can also be attended remotely via Adobe Connect.
- The Aalto contact sessions are led by Prof. Simo Särkkä
    - Except one by Dr. Arno Solin
- The TUT contact sessions are led by Prof. Robert Piché.

Simo Särkkä

Robert Piché

Arno Solin

Course requirements

- The course consists of
  1. video lectures,
  2. quizzes,
  3. homeworks, and
  4. project work
- *Before* the contact sessions students must:
  1. Watch the lecture videos on the web page
  2. Complete the related quizzes
- At least 50% of homeworks (9/18) must be completed.
- At least 80% of homeworks (15/18) gives +1 grade increase.
- The course is graded by the final project work.

Course outline

- 3.11.2016 – Lecture 1: Pragmatic Introduction to Stochastic Differential Equations
- 10.11.2016 – Lecture 2: Itô Calculus and Stochastic Differential Equations
- 17.10.2016 – Lecture 3: Probability Distributions and Statistics of SDEs
- 24.10.2016 – Lecture 4: Numerical Solution of SDEs, Itô–Taylor Series, Gaussian Approximations
- 1.12.2016 – Lecture 5: Stochastic Runge–Kutta Methods
- 8.12.2016 – Lecture 6: Bayesian Inference in SDE Models
- 8.12.2016–8.1.2017 – Project work