Performance evaluation

Le Boudec Jean-Yves

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<thead>
<tr>
<th>Cursus</th>
<th>Sem.</th>
<th>Type</th>
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<tr>
<td>Cybersecurity</td>
<td>MA2, MA4</td>
<td>Opt.</td>
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<tr>
<td>Data Science</td>
<td>MA2, MA4</td>
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<td>Informatique et communications</td>
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<td>Informatique</td>
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<td>Mineur en Data science</td>
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<td>Robotique, contrôle et systèmes intelligents</td>
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<td>SC master EPFL</td>
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Remarque

Cours biennal donné les années paires

Summary

In this course you will learn the methods and techniques that are used to perform a good performance evaluation during a research or development project.

Content

Methodology

A Performance Evaluation Methodology. The scientific method. Dijkstra and Occam’s principle.

Statistics and Modeling.


Practicals.


Elements of a Theory of Performance.


Mini-Project

proposed by student.

Learning Prerequisites

Required courses

A first course on probability
A first course on programming

Learning Outcomes

By the end of the course, the student must be able to:

• Estimate confidence intervals
• Design a simulation method
• Critique performance metrics and factors
• Organize a performance evaluation study
• Quantify performance
• Conduct a performance analysis
• Synthesize performance results
• Systematize factors and metrics
• Present results of a performance analysis

Transversal skills
• Use a work methodology appropriate to the task.
• Demonstrate the capacity for critical thinking

Teaching methods
Lectures + pencil and paper exercises + labs + miniproject

Expected student activities
Lectures
Paper and pencil exercises
Labs
Miniproject (last 4 weeks)
Online quizzes.

Assessment methods
E = grade at final exam (during exam session)
L = average of labs
M = miniproject grade
Final grade = \( \frac{1}{3} (E+L+M) \), rounded to the nearest half integer.
All grades except the final grade are not rounded.

Resources
Virtual desktop infrastructure (VDI)
No

Bibliography
• also freely available online at perfeval.epfl.ch

Ressources en bibliothèque
• Performance evaluation of computer and communication systems / Le Boudec

Moodle Link
• http://moodle.epfl.ch/course/view.php?id=14395