Selection of an article

- While selecting the article you would like to present, keep into account that:

  - Each article is assigned to a session (date)

  - Articles are related to different topics

  - Articles require different background knowledge (specified also on the web page of the course)

- Articles are assigned on the basis of the email timestamp (fist arrived, first served)

Topic overview

- The course articles are linked in the course website
  - Seminar section:

    http://www.ida.liu.se/~TDDD50/seminars

- The topics seminars will focus on are:

Life cycle assessment	Data centres
Networking	Power management
Mobile/Applications	

Topic: Life Cycle Assessment

[1] Title: "Regional or Global WEEE Recycling. Where to Go?"

- Overview on the electronic waste problem, legislation, standards and global initiatives

- A study of the electronic waste movements between importing and exporting countries

Length: 12 pages

Required knowledge: basic computer architecture

Topic: Data centres

[2] Title: "Characterizing the power cost of virtualization environments"

- Compares the power consumption of servers used in data centres deploying two alternatives: virtual machines and containers
- Uses both measurements and modelling to understand the difference between the two solutions' energy efficiency

Length: 11 pages

Required knowledge: basic computer architecture

Topic: Green AI

[3] Title: "A review of green artificial intelligence: Towards a more sustainable future"

- Green by AI: Identifies the improvements in sustainability that AI algorithms can contribute to

- Green in AI: Suggests approaches that ensure application of AI does not increase the computational costs, and energy footprints

Length: 8 pages

Required knowledge: basic computing and networking

Topic: Applications, IM

[4] Title: "When Mice Consume Like Elephants: Instant Messaging Applications"

- 3G communication energy

- Study of the usage characteristics and communication energy consumption created by instant messaging applications

- Quantification of a application feature and a simple approach to trade off energy and delay by bundling messages

Length: 10 pages (Choose to focus on section 7 or 8)

Required knowledge: basic computer networks

Topic: Mobile devices/app

Mobile/App

[5] Title: "A POI-Aware Power Saving Scheme for Ubiquitous Touring Service using Mobile Devices over the Cellular and Wi-Fi Hybrid Network"

- Analysis the energy consumption of location-based services

- Proposes methodologies to reduce it

Length: 14 pages (either focus on the cache or the transmission details, choosing between Tables 3 and 4)

Required knowledge: basic computer engineering

Topic: Applications

[6] Title: "All you can stream: Investigating the role of user behavior for greenhouse gas intensity of video streaming"

- Analyses the energy consumption of video streaming services

- Investigates how different user behavior (device) factors impact the CO_2-intensity of video streaming

Length: 10 pages

Required knowledge: basic computer engineering

Topic: Networking

[7] Title: "IEEE 802.3az: The Road to Energy Efficient Ethernet"

- Describes the new standard for energy efficient Ethernet to make network interface cards move to sleep mode

- Analyses the environmental (energy) and monetary benefits deriving from the standard

- Analyses the Quality of Service tradeoff resulting from the standard application

Length: 7 pages

Required knowledge: computer networks

Topic: Networking

[8] Title: "Electricity Intensity of Internet DataTransmission: Untangling the estimates"

- Analyses and discusses fourteen earlier reports that provide estimates for the Internet transmission energy – with results that are different by several orders of magnitude!

- Identifies a way to consistently derive energy per transmitted bit estimations.

- Tries to answer the question: has Internet transmission energy in developed countries increased or decreased within a 15 year perspective?

Length: 14 pages (Several are large tables)

Required knowledge: basic computer networks

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Topic: Power management

[9] Title: "Parasol and GreenSwitch: Managing Datacenters Powered by Renewable Energy"

- A prototype green datacenter built as a research platform

- It uses solar panels and battery as well as grid power as supply

Length: 12 pages (Sections 2 except "Managing workloads in green datacenters" and 5.2 can be skipped)

Required knowledge: computer architecture

Topic: Data centres

[10] Title: " Making Data Centers Fit for Demand Response: Introducing GreenSDA and GreenSLA Contracts"

- Proposal for inclusion of energy-related topics in Service Level Agreements (SLA) between datacentres and users, and Supply Demand Agreements (SDA) between datacentres and energy suppliers

- Discusses how datacentres can work with clients and suppliers to overcome the tradeoffs between going green and providing reliable services

Length: 12

Required knowledge: basic computer engineering

Topic: Data centres

[11] Title: "Exploring HW Profile-Guided Green Datacenter Scheduling"

- Introduces energy saving techniques for datacenters based on HW profiling

- Shows how insights about the available HW can help to reduce the energy consumption of datacenters

Length: 10 pages

Required knowledge: basic distributed systems