

L-huset

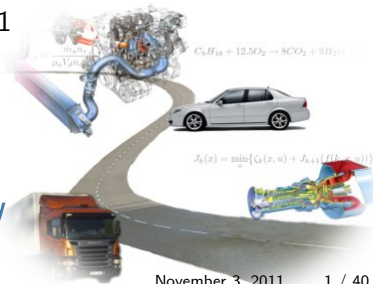
En ny byggnad vid Linköpings universitet

Vehicular Systems
Dept. of Electrical Engineering
Linköping University
Sweden

November 3, 2011



Linköping University

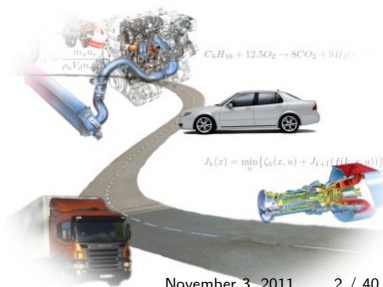


Tre huvuddelar:

- Laboratoriet för Fordonsframdrivning
- Laboratoriet för Fordonsinformatik
 - Interna tillstånd
 - Externa tillstånd
- Laboratoriet för Energiomvandling och Energilagring

Dessutom:

- Kontor
- Konferensrum



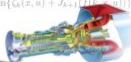
Första spadtaget – 28 januari, 2011



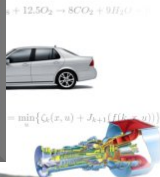
$+ 12.5O_2 \rightarrow 8CO_2 + 9H_2O \rightarrow$



$= \min \{ C_k(x, u) + J_{k+1}(f(x, u)) \}$




Gjutning – 2 februari, 2011




Gjutning – 2-16 februari, 2011



$12.5O_2 \rightarrow 8CO_2 + 9H_2O$



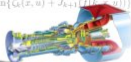
$\min \{G_i(x, u) + J_{i+1}(\hat{f}(x, u))\}$



Resning av stomme – 23 februari, 2011



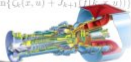
$$= \min \{ C_k(x, u) + J_{k+1}(f(x, u)) \}$$



Takstolar och tak – 3 mars, 2011



$$= \min \{ C_0(x, u) + J_{i+1}(\{l_i, u\}) \}$$



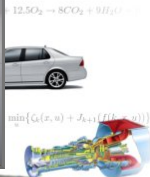
Väggar på väg upp – 16 mars, 2011



$$\min \{ C_k(x, u) + J_{k+1}(f(x, u)) \}$$



Interiören börjar ta form – 5 april, 2011



$12.5O_2 \rightarrow 8CO_2 + 9H_2O$

$\min\{C_0(x, u) + J_{i+1}(f(x, u))\}$

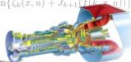
Yttre skal – 5 april, 2011



$+ 12.5O_2 \rightarrow 8CO_2 + 9H_2O + \dots$



$= \min \{ C_0(x, u) + J_{i+1}(\{(t, x)\}) \}$



Redo för invigning



Officiell invigning av L-huset – 5 oktober, 2011

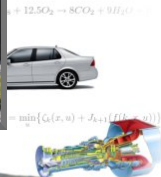


Officiell invigning av L-huset – 5 oktober, 2011

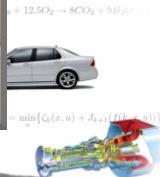


Invigning av L-huset

Officiell invigning av L-huset – 5 oktober, 2011

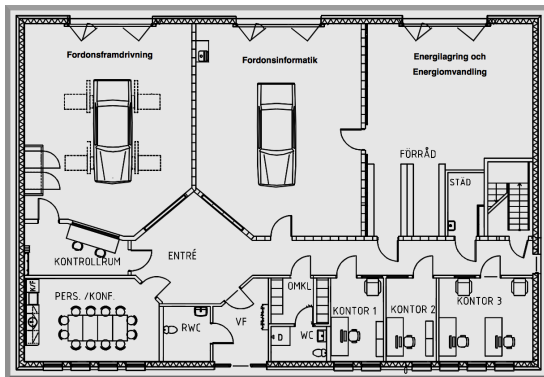


Officiell invigning av L-huset – 5 oktober, 2011



Tre huvuddelar:

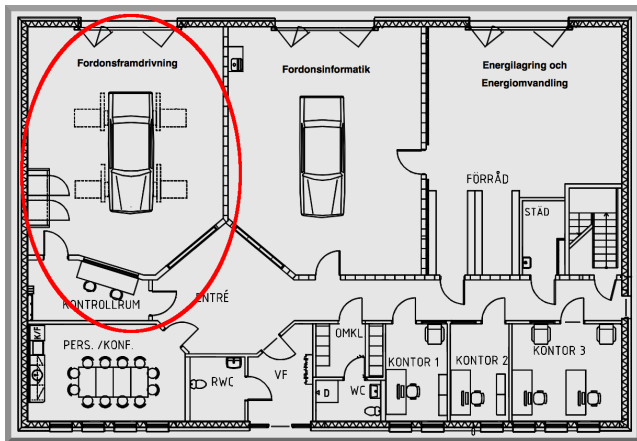
- Laboratoriet för Fordonsframdrivning
- Laboratoriet för Fordonsinformatik
- Laboratoriet för Energiomvandling och Energilagring



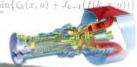
$$J_k(x) = \min\{C_k(x, u) + J_{k+1}(f(x, u))\}$$



Fordonsframdrivning



$$J_k(x) = \min\{C_k(x, u) + J_{k+1}(f(x, u))\}$$

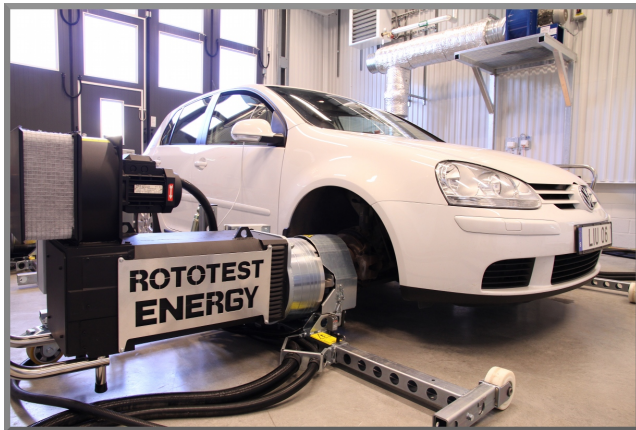


Fordonsframdrivning

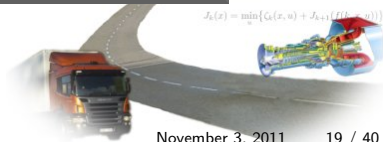
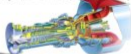
- Ny utrustning – Rototest
- Hjuldynamometrar (4 hjul)
- Samutveckling med Rototest
- Simulering av körcykler
- Utvärdera hybridfordonskoncept



Fordonsframdrivning



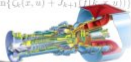
$$J_k(x) = \min\{G_k(x, u) + J_{k+1}(f(x, u, 0))\}$$



Fordonssystem



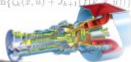
$$J_k(x) = \min\{G_k(x, u) + J_{k+1}(f(x, u))\}$$



Fordonsframdrivning



$$J_k(x) = \min\{G_k(x, u) + J_{k+1}(f(x, u))\}$$



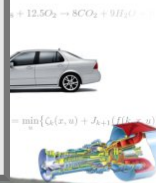
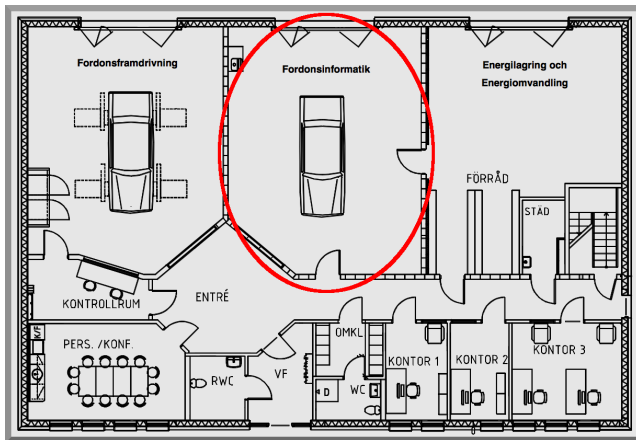
Fordonsframdrivning



$$J_k(x) = \min \{ G_k(x, u) + J_{k+1}(f(x, u)) \}$$



- Interna tillstånd
- Externa tillstånd



$$+ 12.5O_2 \rightarrow 8CO_2 + 9H_2O$$
$$= \min\{C_0(x, u) + J_{k+1}(f(x, u))\}$$

Ett testfordon för fordonsdynamiska studier



Vehicle Testbed

1. Slip angle sensor

- Corrsys-Datron Correvit S-350

2. Pitch & roll angle system

- Corrsys-Datron HF-sensors

3. IMU

- Xsens MTi

4. GPS

- u-blox AEK-4P

5. Vehicle CAN (NIRA Dynamics)

- Steering wheel angle
- Wheel speeds
- Engine data
- etc ...

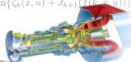
VW Golf V -08



Fordonsinformatik – Interna tillstånd



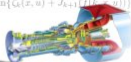
$$J_k(x) = \min\{G_k(x, u) + J_{k+1}(\{f(x, u)\})\}$$



Fordonsinformatik – Interna tillstånd



$$J_k(x) = \min\{G_k(x, u) + J_{k+1}(f(x, u))\}$$



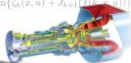
Samarbetsavtal med Linköpings Motorsällskap



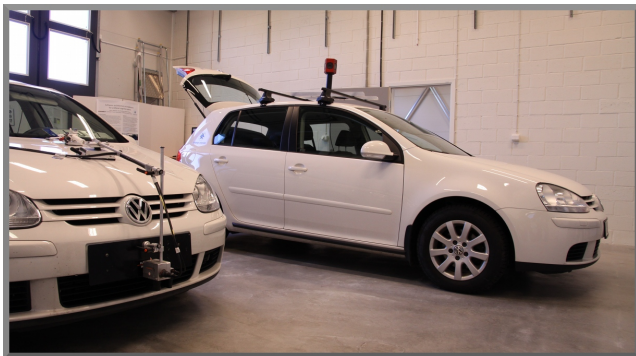
Fordonsinformatik – Interna tillstånd



$$= \min \{ G_k(x, u) + J_{k+1}(\Phi(x, u)) \}$$

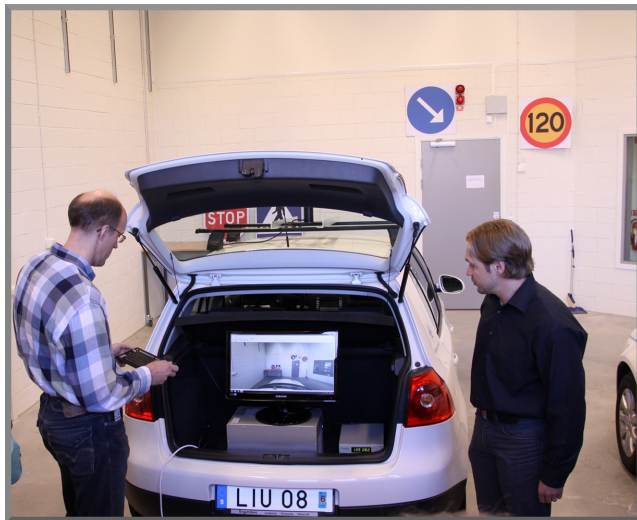


Fordonsinformatik – Externa tillstånd

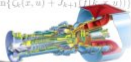


$$J_k(x) = \min\{C_k(x, u) + J_{k+1}(f(x, u))\}$$

Fordonsinformatik – Externa tillstånd



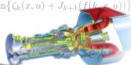
$$= \min \{ C_0(x, u) + J_{k+1}(f(x, u)) \}$$



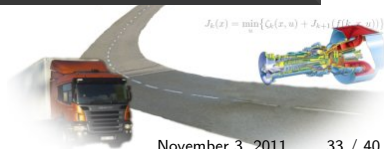
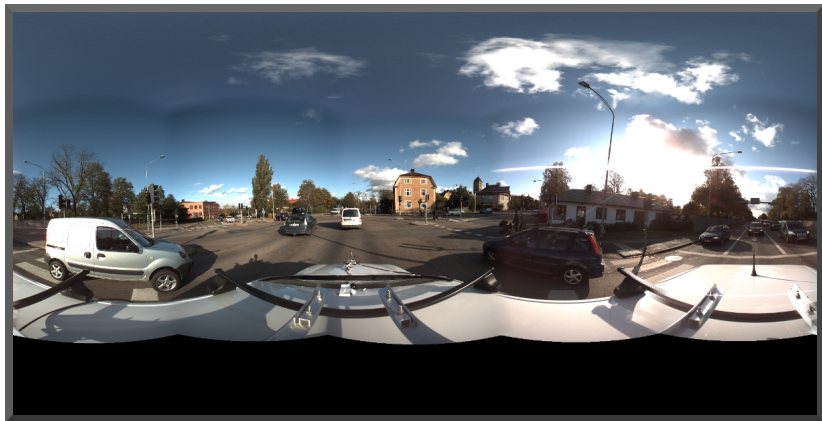
Fordonsinformatik – Externa tillstånd



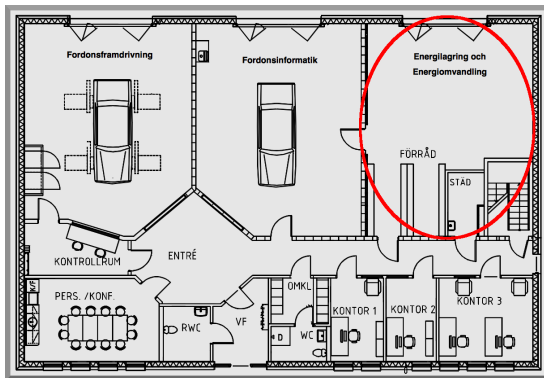
$$J_k(x) = \min\{G_k(x, u) + J_{k+1}(\Phi(x, u))\}$$



Fordonsinformatik – Externa tillstånd



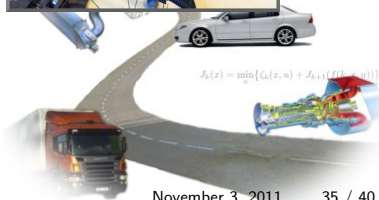
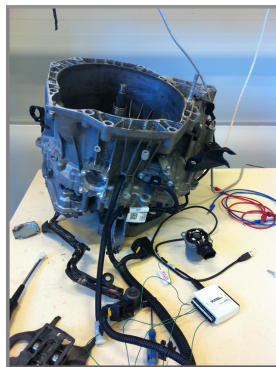
Energiomvandling och Energilagring



$$J_k(x) = \min\{C_k(x, u) + J_{k+1}(f(x, u))\}$$

Många möjligheter:

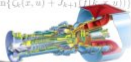
- Battery management systems
- Elektrisk drivning
- Kiselkarbid
- Drivlinekomponenter



Energiomvandling och Energilagring



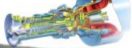
$$J_k(x) = \min\{C_k(x, u) + J_{k+1}(f(x, u))\}$$



Energiomvandling och Energilagring



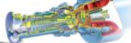
$$J_k(x) = \min \{ C_k(x, u) + J_{k+1}(f(x, u)) \}$$



Energiomvandling och Energilagring



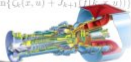
$$J_k(x) = \min\{C_k(x, u) + J_{k+1}(f(x, u))\}$$



Energiomvandling och Energilagring



$$J_k(x) = \min \{ G_k(x, u) + J_{k+1}(f(x, u)) \}$$



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