Module S4 Definitive Methods for Concurrent Systems Modelling

Timetable

Monday 1 November 1993

Theme of the day: orientation on whole concept + intro to basic donald and eden

09.15	Module Overview
09.45	Lecture 1: General Principles of Definitive Programming
10.30	Demonstration: The Vehicle Cruise Control Simulation
	How to manage 15-20 people? Where to have demo?
11.00	*Coffee*
11.15	Lecture 2: Introducing Definitive Notations
12.00	Demonstrations and Tutorial on DoNaLD
	Paul to compere: UNIX set-up, parallel room demo in MSc Lab.
01.00	*Lunch*
02.00	Lecture 3: Introduction to EDEN programming
02.45	Demonstrations and Tutorial on EDEN
03.15	Tutorial and Laboratory: Animating Railway Signals
	Paul to introduce + liaise with Simon on preparation:
	signal model in donald
	sequence of distant, home and starting signals
	integration with track demo
04.00	*Tea*
04.15	Laboratory
05.00	Seminar 1: The Definitive Programming Project Reviewed

Tuesday 2 November 1993

Theme of the day: Understanding concurrent systems through experiment

09.00	Lecture 4: Visualisation and Concurrent Systems Modelling
09.45	Demonstration: Visual Interfaces with SCOUT and DoNaLD
11.00	*Coffee*
11.15	Lecture 5: An introduction to Scout
12.00	Tutorial and Laboratory: The Railway Bulletin Board Paul to introduce + liaise with Simon on preparation: setting up a arr-dep board + integration with track demo
01.00	*Lunch*
02.00	Tutorial on the Scout-Donald-Eden system Simon to describe the architecture of Scout-Donald-Eden
02.45	Tutorial and Laboratory: Visualisation for an Integrated Railway Simulation Paul to introduce + liaise with Simon on preparation: layout of windows to incorporate products of previous tutorials + visualisation aspects of the Railway Station Animation
04.00	*Tea*
04.15	Laboratory
05.00	Seminar 2: Programming as Modelling

Wednesday 3 November 1993

Theme of the day: Analysis of interaction between agents as basis for programming

09.00 Lecture 6: Agent-Oriented Modelling for Discrete Event Systems

10.00 Demonstration: The Railway Station Animation

10.20 Tutorial: LSD specification of the VCCS
Sailboat could be used as complementary example

11.00 *Coffee*

11.15 Lecture 7: Principles of LSD specification

12.00 Case studies: Telephone, Railway Station Animation, Electronic Catflap
Objective: to introduce the mode of analysis associated with LSD
include detailed discussion of railway agents

01.00 *Lunch*

02.00 Workshop: Back to the Future – Current Computing in Railway History
Perspective on Railway Development: role of perception / concurrency
- signalling history beginning with present-day and full automation
backwards through mechanical technology of golden age of railway
key concepts for video (to be identified) introduced
illustrative material on signalling, blocking, track circuits etc
to include demos if possible, based on Simon's track + station layout
- Extract from the Video:
discussion of agents, oracles, handles and derivates
lessons for concurrent systems simulation, railways as programs?
- Early disasters
Scene setting: historical context, technological status
Analysis of four accidents: discussion in 4 subgroups
exploring possible LSD specifications for agents
[other possibilities: interactive demo, act out scenarios?]
- Epilogue to connect early railways and present-day computing

04.00 *Tea*

04.15 Laboratory

05.00 Seminar 3: Foundations of Programming

Thursday 4 November 1993

Theme of the day: Realising analysis of interaction between agents as programs

09.00 Lecture 8: The Abstract Definitive Machine

10.00 Tutorial: Animating LSD specifications in the ADM

Laboratory: Testing the telephone

Need telephone.am + operational aspects recalled

11.00 *Coffee*

11.15 Lecture 9: Observations, continuity and events

Continuous and discrete simulations combined: issues

12.00 Tutorial: Linking the ADM and EDEN

Simon to describe the various ways of prototyping from LSD

am / adm / eden

relative merits

ttt example

01.00 *Lunch*

02.00 Parallel Demonstrations: Beetles, Cricket, Billiards, Sailboat

Objective: help students appreciate potential + choose assessment task

Envisage setting up 4 concurrent demos in MSc laboratory

(perhaps using mouth and ear to run beetles on 2 workstations?)

Give a brief overview of the technical content of each

02.30 Tutorial and Laboratory: Railway events, and animation in the ADM and EDEN

Some ideas about how to animate train motion

with good synchronisation wrt signalling and IO (!?)

in accordance with Newton's Laws

04.00 *Tea*

04.15 Laboratory

05.00 Seminar 4: Definitive Methods for Programming and Parallelism

theme of abstract programming using scripts + concurrency

OXO + Paul's work on Petri Nets etc to reference / illustrate?

Friday 5 November 1993

Theme of the day: What we're ideally heading towards as design environment

09.00	Lecture 10: Extensions and Issues for LSD and EDEN overhead transparencies required for this lecture! possibly revise contents to reflect more topical issues?
10.00	Tutorial and Demonstration: The Digital Watch and Statechart Animation Still very sketchy demo here: need the statechart to hand etc may be some scope to improve prior to the day (!)
11.00	*Coffee*
11.15	Laboratory and Individual Consultations Interview students individually as a panel of three (?) Default assignments to be conceived in railway signalling area?
01.00	*Lunch*
02.00	Seminar 5: Future Research Directions and Projects Where next? Need to update project list. Suggested focus on work that will assist next generation ADM + build on parallel implementation concerns
03.00	Concluding Discussion
03.45	Module Debriefing
04.00	*Tea / End*