Patterns in a Computer Science / Data Science Career

Prof.dr.ir. Hajo Reijers
Orientation

Wil van der Aalst role in my professional career:
- Promotor (1997-2002)
- Colleague at TU/e (1997-2017)
- Source of inspiration (1997 - ...)
MATCH Advanced Summer Schools (LAST ANNOUNCEMENT)

Gabriele Kotsis  gabi@poseidon.ani.univie.ac.at
Tue, 30 Jun 1998 10:37:11 +0200

- Previous message: Visit Susan Flynn-Hummel
- Messages sorted by: [date] [thread] [subject] [author]

Bitte, auch/insbesonders an interessierte Studierende weiterleiten!

Last announcement (Application: before July 1st, 1998)

*************************************************************
* MATCH ADVANCED SUMMER SCHOOLS *
*************************************************************

September 3-11, 1998. Jaca, Spain

System Engineering. A Petri Net Based Approach to Modelling, Verification and Implementation.
September 14-22, 1998. Jaca, Spain

All the details can be found on the Schools www page

http://www.cps.unizar.es/deps/DIIS/MATCH/

“Nothing is forever” 1984 – 2018
Developments in Computer Science / Data Science
## MATCH
### Advanced Summer Schools

### Detailed Programme of the System Engineering Summer School

<table>
<thead>
<tr>
<th>Day</th>
<th>Session</th>
<th>Title</th>
<th>Professors</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday 14th</td>
<td>a.m.</td>
<td>Models and toy examples (lecture)</td>
<td>R. Valk</td>
<td>3h. 30m</td>
</tr>
<tr>
<td></td>
<td>p.m.</td>
<td>Tools presentation and use of toy examples (lecture and exercises)</td>
<td>R. Valk and LIP6</td>
<td>2h. 30m</td>
</tr>
<tr>
<td>Tuesday 15th</td>
<td>a.m.</td>
<td>More on High Level Nets (lecture)</td>
<td>C. Girault</td>
<td>1h.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>More on properties, linear properties and net subclasses (lecture)</td>
<td>J.M. Coloma</td>
<td>2h.</td>
</tr>
<tr>
<td></td>
<td>p.m.</td>
<td>Modelling process (lecture)</td>
<td>M. Voorsnoe</td>
<td>1h. 30m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Principles and tools for modelling (lecture and exercises)</td>
<td>M. Voorsnoe</td>
<td>1h.</td>
</tr>
<tr>
<td>Wednesday 16th</td>
<td>a.m.</td>
<td>Workflow Management Systems (lecture and exercises)</td>
<td>W.v.d. Aalst</td>
<td>3h. 30m</td>
</tr>
<tr>
<td></td>
<td>p.m.</td>
<td><strong>FREE/EXCURSION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thursday 17th</td>
<td>a.m.</td>
<td>Flexible Manufacturing Systems (lecture and exercises)</td>
<td>J. Exeleta</td>
<td>3h. 30m</td>
</tr>
<tr>
<td></td>
<td>p.m.</td>
<td>State Space based Methods I (lecture and exercises)</td>
<td>J.M. Ilie, S.Haddad, D. Pottenaud</td>
<td>2h. 30m</td>
</tr>
<tr>
<td>Friday 18th</td>
<td>a.m.</td>
<td>Formal Design of Telecommunication Services (lecture and exercises)</td>
<td>P. Estrailier</td>
<td>3h. 30m</td>
</tr>
</tbody>
</table>
**MATCH**

Advanced Summer Schools

---

### Detailed Programme of the System Engineering Summer School

<table>
<thead>
<tr>
<th>Day</th>
<th>Session</th>
<th>Title</th>
<th>Professors</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>a.m.</td>
<td>Models and toy examples (lecture)</td>
<td>R. Valk</td>
<td>8h 30m</td>
</tr>
<tr>
<td></td>
<td>p.m.</td>
<td>Tools presentation and use of toy examples (lecture and exercises)</td>
<td>R. Valk and LIP6</td>
<td>2h 30m</td>
</tr>
<tr>
<td>Tuesday</td>
<td>a.m.</td>
<td>More on High Level Nets (lecture)</td>
<td>C. Gimaite</td>
<td>1h</td>
</tr>
<tr>
<td></td>
<td>p.m.</td>
<td>More on properties, linear properties and net subclasses (lecture)</td>
<td>J.M. Colon</td>
<td>2h</td>
</tr>
<tr>
<td></td>
<td>p.m.</td>
<td>Modelling process (lecture)</td>
<td>M. Noorela</td>
<td>1h 30m</td>
</tr>
<tr>
<td></td>
<td>p.m.</td>
<td>Principles and tools for modelling (lecture and exercises)</td>
<td>M. Noorela</td>
<td>1h</td>
</tr>
<tr>
<td>Wednesday</td>
<td>a.m.</td>
<td><strong>Workflow Management Systems (lecture and exercises)</strong></td>
<td>W.v.d. Aalst</td>
<td>8h 30m</td>
</tr>
<tr>
<td></td>
<td>p.m.</td>
<td><strong>FREE/EXCURSION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thursday</td>
<td>a.m.</td>
<td>Flexible Manufacturing Systems (lecture and exercises)</td>
<td>J. Espeleta</td>
<td>3h 30m</td>
</tr>
<tr>
<td></td>
<td>p.m.</td>
<td>State Space based Methods I (lecture and exercises)</td>
<td>J.M. Ilie, S. Haddad, D. Pottenaud</td>
<td>2h 30m</td>
</tr>
<tr>
<td>Friday</td>
<td>a.m.</td>
<td>Formal Design of Telecommunication Services (lecture and exercises)</td>
<td>P. Estrailier</td>
<td>3h 30m</td>
</tr>
</tbody>
</table>
# MATCH
**Advanced Summer Schools**

## Detailed Programme of the System Engineering Summer School

<table>
<thead>
<tr>
<th>Day</th>
<th>Session</th>
<th>Title</th>
<th>Professors</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>a.m.</td>
<td>Models and toy examples (lecture)</td>
<td>R. Valk</td>
<td>3h. 30m</td>
</tr>
<tr>
<td>14th</td>
<td>p.m.</td>
<td>Tools presentation and use of toy examples (lecture and exercises)</td>
<td>R. Valk and LIP6</td>
<td>2h. 30m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuesday</td>
<td>a.m.</td>
<td>More on High Level Nets (lecture)</td>
<td>C. Gislau</td>
<td>1h.</td>
</tr>
<tr>
<td>15th</td>
<td>p.m.</td>
<td>More on properties, linear properties and net subclasses (lecture)</td>
<td>J.M. Coloma</td>
<td>2h.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>p.m.</td>
<td>Modelling process (lecture)</td>
<td>M. Voorsma</td>
<td>1h. 30m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>p.m.</td>
<td>Principles and tools for modelling (lecture and exercises)</td>
<td>M. Voorsma</td>
<td>1h.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td>a.m.</td>
<td>Workflow Management Systems (lecture and exercises)</td>
<td>W.v.d. Aalat</td>
<td>3h. 30m</td>
</tr>
<tr>
<td>16th</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>p.m.</td>
<td>FREE/EXCURSION</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thursday</td>
<td>a.m.</td>
<td>Flexible Manufacturing Systems (lecture and exercises)</td>
<td>J. Expeleta</td>
<td>3h. 30m</td>
</tr>
<tr>
<td>17th</td>
<td>p.m.</td>
<td>State Space based Methods I (lecture and exercises)</td>
<td>J.M. Ilie, S.Haddad, D Pottenaud</td>
<td>2h. 30m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friday</td>
<td>a.m.</td>
<td>Formal Design of Telecommunication Services (lecture and exercises)</td>
<td>P. Estrailer</td>
<td>3h. 30m</td>
</tr>
<tr>
<td>18th</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

"Nothing is forever" 1984 – 2018
Developments in Computer Science / Data Science
“Nothing is forever” 1984 – 2018
Developments in Computer Science / Data Science
“Nothing is forever” 1984 – 2018
Developments in Computer Science / Data Science
Nothing is forever – 1984 – 2018

Developments in Computer Science / Data Science

software

system

specifies

configures

implements

analyzes

(process) model

Records, events, e.g., messages, transactions, etc. specify, configure, implement, and analyze.
“Nothing is forever” 1984 – 2018
Developments in Computer Science / Data Science

- (process) model
- event logs
- software system
- records events, e.g., messages, transactions, etc.

specifies
configures
implements
analyzes
(process) model

specifies
configures
implements
analyzes

software system
records
events, e.g.,
messages,
transactions,
etc.

discovery

event logs

...
“Nothing is forever” 1984 – 2018

Developments in Computer Science / Data Science

- people
- machines
- components
- organizations
- business processes
- models
- analyzes
- specifies
- configures
- implements
- analyzes
- discovers
- events, e.g., messages, transactions, etc.

- software system
- event logs

- (process) model
“Nothing is forever” 1984 – 2018

Developments in Computer Science / Data Science

software system

records events, e.g., messages, transactions, etc.
specifies configures implements analyzes
models analyzes
(disprocess) model
“world”
people machines components organizations
business processes

event logs
discovery
“Nothing is forever” 1984 – 2018

Developments in Computer Science / Data Science

- “world”
  - people
  - machines
  - components
  - organizations
- business processes
- models
- analyzes
- software system
  - records events, e.g., messages, transactions, etc.
- (process) model
- event logs
- discovers
- specifies
- configures
- implements
- analyzes

people, machines, components, organizations

processes

software system

records events, e.g., messages, transactions, etc.

(discovery)
"Nothing is forever" 1984 – 2018

Developments in Computer Science / Data Science

Software system records events, e.g., messages, transactions, etc.

(event logs)

(models)

(discovery)

(conformance)

(enforcement)

(process)

(model)

"world"

business processes

people

machines

components

organizations

specifies

configures

implements

analyzes

analyzes

analyzes

analyzes
Patterns

1. Look beyond
2. Connect worlds
3. Don’t sit still
4. Inspire