

**Arnoud den Boer**

wins the

**‘Gijs de Leve prize’**

for the best PhD thesis in

**‘Mathematics of  
Operations Research’**

for the years 2012-2014



*Laudatio of Leen Stougie, chairman of the LNMB*

The Gijs de Leve Award is an award named after one of the founding fathers of Operations Research in the Netherlands. It is a triannual award for the best PhD-thesis over the three years preceding the LNMB Lunteren conference at which the award is given. This means that for the award of this year PhD-theses could be nominated that have been defended in the years 2012, 2013 and 2014. This time the Gijs de Leve Award is awarded for the 7th time. After the laudatio that I will read the prize will be handed to the winner by Jan Karel Lenstra. Jan Karel is one of Gijs' scientific children and one of the founding fathers of the LNMB.

Traditionally, the jury for the Gijs de Leve Award consists of the Daily Board of the LNMB. In total we had 13 high quality nominations. In a first round the jury selected the following 3 in alphabetical order:

- Arnoud den Boer: Dynamic Pricing and Learning
- Nikky Kortbeek: Quality-Driven Efficiency in Healthcare
- Kamil Kosinski: Gaussian and Levy-driven queues

In the second round all jury members read the 3 selected theses. Their rankings showed a unanimity. While all 3 theses were of very high quality, the clear winner of the Gijs de Leve Award this year is **Arnoud den Boer**.

Arnoud den Boer did his PhD at CWI and graduated at the VU under supervision of Rob van der Mei and Bert Zwart. The thesis is about dynamic pricing and learning, two very popular relatively new research items by themselves. Their popularity stems from their direct applicability for example through internet sales. The fascination in the work of Arnoud den Boer is that he studies these two concepts in an intrinsically interconnected way. He shows that in order to learn one may need to lose some optimality on the way in setting prices. That is, schemes that are myopic and return prices that maximize immediate profit, based on the present estimates of parameters, may fail to find the optimal pricing policy according to the real underlying process. Next to that he designs schemes for optimizing and learning that converge to optimal solutions over time for a variety of problem settings at a loss that is in a certain theoretical sense best possible.

His work has led already to publications in among others Management Science and Mathematics of Operations Research. A paper in Operations Research is almost accepted.

Let me also cite some more praises from the recommendation letter that went along with the nomination of Arnoud.

- Arnoud had to overcome the difficulty that his supervisors were not at all familiar with the area of dynamic pricing. He invested his whole first year understanding the area on his own and determining interesting problems to work on without any guidance.
- Arnoud's work has impact outside academia. A pilot has begun November 1, in which several products in a web shop will be sold using the algorithms developed in Chapters 3 and 4 of Arnoud's thesis.
- Arnoud's work has received media attention (Business News Radio, Hoe?Zo! Radio, Twinkle magazine for e-commerce).

To these praises I add that the thesis is very well written. Of course, I did not have time to read the full thesis, but I will certainly do so in the near future, and I advise researchers, both from the deterministic optimization/theoretical computer science community and the stochastic OR community to do the same. It is an inspiring piece of important work.

By unanimity of votes the jury is convinced that we have selected a very talented researcher with great prospects for the future. I give the floor now to Jan Karel Lenstra to hand officially the Gijs de Leve Award 2012-2014 to the well-deserved winner Arnoud den Boer.