

Development dialogue Artificial Intelligence Radboud University

Present: Prof.dr Marcel van Gerven (RU); drs Cristel Claas-Hofman (RU); Dr Franc Grootjen (RU); Prof.dr Ann Nowé (VUB); Prof.dr Bart de Boer (VUB); Prof. dr Wiebe van der Hoek (University of Liverpool); Prof. dr Cees Witteveen (TUD); Prof. dr Frank Jäkel; Dr. Kees Nieuwenhuis (Thales); Florence van der Voort BSc (master student Artificial Intelligence and Philosophy, VU Amsterdam); Dr Marijn Hollestelle (QANU) *secretary*.

During the development dialogue, two specific questions were raised:

1. How to manage an increasing student population?
2. How to maintain an excellent educational programme which includes improving the profiling of the RU MSc specialisations.

An increasing student population has been putting a strain on the staff of the programmes. To keep student numbers manageable for teaching staff, the RU has installed a Numerus Fixus for the bachelor programme AI, in effect from the academic year 2018-2019 onward. The panel recognizes that the Numerus Fixus is an appropriate measure to limit student number and, in addition, the attached selection procedure will help in attracting students that are more motivated and better equipped to complete the program without delays. However, as AI experts are in high demand, increasing the capacity of the programme is also desirable. The programmes indicate that more research and teaching staff members (at least four) are hired as of 2019. Temporary assignments of teaching staff could further help containing the work load for teaching staff. The panel suggests the programme should resist the temptation to grow the provision of courses in proportion to the growth of staff. To retain the stability in the programme, it would be beneficial to be modest with respect to adding more courses to the programmes.

Graduated AI bachelor students from RU also go to the master's programme Computing science, which is well aligned with the bachelor's programme AI. Most students starting their bachelor's programme don't know with which master's programme they want to continue their studies. This is something they decide during their bachelor's studies. Most of the students graduating from the bachelor programme AI at Radboud University go to do a master programme in Amsterdam, but many other bachelor graduates from other universities come to the Radboud master programme AI. This also means that there is a broad influx of students from other universities and other programmes. This aligns with the goal of the programme to make use of its human-centred AI profile and attract a wider range of students with a more diverse background.

To allow this wider range of students to enter the programme, management is exploring the possibility of starting a pre-master. This will help students coming from other bachelor programmes than Artificial Intelligence or Computer/Data Science to bridge the gap in background knowledge (for instance in programming or mathematics). The panel is positive about the setup of the pre-master. It is important to think about the pros and cons of a pre-master in just the spring semester, or spread over the year starting the master. The pre-master could also aid in attracting students with a psychology and medicine background. The programme itself already focusses on making better use of students with a more diverse background, utilising its two specialisations geared toward the research done at the Donders Institute (Neural Computation) and toward AI applications (Interactive Agents) that will allow closer interactions between the AI department and more applied departments (e.g. Psychology, Communication Science, and the University Medical Centre).

One of the suggestions of the panel would be to include a stronger link with industry in the programme. Industry is very keen on keeping track with academic programmes, and are in need of good AI labour force (from the industrial perspective, lifting the Numerus Fixus would be a most desirable action). To be able to do this, the panel advises to expand the relatively new work field

committee, also involving alumni of the programme, getting the work field committee involved in issues concerning the AI programmes, focussing on important topics.

Currently, there is a drive in companies to get engineers involved in AI, and a need for fundamentals in AI at an academic level in industry. The programme could consider to cater for the companies' needs. Also, companies are very interested in having master students doing dedicated projects with them. Students could find good supervision and guidance with the younger staff (e.g. alumni), who have remained in contact with the master's programme.

The panel is convinced that the programme could give some more thought to how to focus on its unique features to differentiate itself from other programmes in Eindhoven and Tilburg. Focus could be on specialisation areas for expanding the attraction of the master's programme, attracting staff with a distinct research profile to also attract good foreign students. However, in all cases care should be taken not to jump in on all new developments. This could diverge the programme, blurring the focus.

Radboud AI has some strong cards to set themselves visibly apart from other AI programmes in the Netherlands. At Nijmegen, the focus lies on the cognitive aspect and fundamental science, creating strong societal solutions, and driven by an AI institute which is research oriented and provides education in computational science, data science & AI, and AI. The Donders Institute provides an opportunity, which is fostered by aligning the programme with the research done there (Neural Computation). Next to this, there is focus on AI applications (Interactive Agents), allowing close interactions with departments like Psychology, Communication Science, and the University Medical Centre.

The human-centred AI profile at Nijmegen has a unique embedding, aligned with both fundamental work done at the Donders Institute and with applications, interacting with Psychology, Communication Science and the UMC.