AI Research Notes
edited by Lena Holmberg and Jan Reed

AI Research Notes carries news of AI research developments. We’d like to make it as collaborative and appreciative as we can – we know that many of you are working and thinking about the relationship between academic research and AI, and that you have news, comments and questions which we’d like you to contribute.

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Introduction to AI Research Notes
As an academic, you find yourself in different roles: researcher, teacher, project manager, conference organiser, editor, author, workshop leader, funding committee member and so on. AI is a really good support in all these roles and by applying it in these very different contexts your experience is enriched.

In this Research Notes’ column we focus on IT researchers’ experiences using AI in the field. First Lena Holmberg tells the story of how she started to combine software process improvement research and AI. An interview with Agneta Nilsson follows, presenting ways in which she has applied AI in both research and education.

Research, Information Technology and Friendship
Lena Holmberg lmholmberg@gmail.com

My journey into combining Appreciative Inquiry and research all started when my friend and former colleague at the IT University in Gothenburg, Professor Lars Mathiassen, suggested I pick up research again. I was reluctant at first, since it had been many years since I had actually done any research. His angle was very tempting though, pointing out that I could work together with my former colleagues Anna Sandström, Helena Holmström Olsson and Agneta Nilsson, and maybe even bring my consulting experience of Appreciative Inquiry as a topic.
I talked to my friends. They thought it was a good idea for us to have some fun together doing research. All four of us have Information Technology-related PhDs and although it took some time to explain AI they soon saw the challenge of applying it to the Information and Communication Technology (ICT) area. A challenge most welcome, which was why we started our very informal and unfunded research group.

We began with an action research study bringing AI into the process of initiating a new way of working with requirement management in software development at a large telecom company. This taught us a lot about the challenges of applying constructivist approaches to an engineering culture, captured very nicely in this quote by Michel Avital:

‘In spite of the ongoing paradigms war, the bulk of IS [Information System] research on system development has one thing in common – it is virtually grounded in deficit thinking. In other words, whether explicitly or implicitly, the common drive or thrust of the mainstream research of system development stems from a need to fix, correct, or avoid something. Deficit thinking resides in the foundation of many icons that underlie theories of system development such as problem-solving rationality, gap analysis techniques, value chain theory, and the best-practice model.’

However, AI as a research topic was not the greatest challenge, I thought, but how to apply it to the whole process of doing research: how to select research questions, how to do the analysis, how to manage the writing process and our group meetings and so on.

During the empirical work we started to work a lot with Anders Baaz, who later joined our research group. Since we all did almost all the research in our spare time, it took some time to do the study but we managed to write an article and were thrilled to see it accepted as a paper at the IFIP 8.6 conference in Manchester 2007. When going there I also visited Ann Shacklady-Smith at Manchester University, who went to the same AI course at Case Western University as my then-colleague Helena Kovacs. It was great to meet Ann and to hear about how she applied AI when working at the university and in a nearby community. She is now an active member of the AI UK Network, which I am happy to have witnessed the birth of. I’m so excited by the electronic map that has been the result of the dreams of the group.

By this time, Anne Radford had put me in contact with Jan Reed, since I wanted to get in touch with more people using AI in research. Anne asked us to do a special issue on AI and research which we did in November 2007. We came in contact with academics all around the world, making new friends. Jan and I explored how to use AI in the editing process, a task most difficult. Editing is very much about selecting and we wanted to be inviting and inclusive. This is why we ended up with many short articles from both professors and students. I learned a

“For me, it is not possible to study the effects of applying AI in software development by using traditional research approaches”

lot from Jan during the editing process and it was great to finally meet her IRL (in real life) at the AI Research workshop Anne arranged in Newcastle.

I met some of my new AI research friends at the AI conference in Orlando in September 2007. Afterwards, I went to Atlanta to visit Lars Mathiassen. He had been inspired by our work applying AI to Software Process Improvement and, together with Nannette Napier, he had introduced it in a study on project management. I wanted to know more about their work, which was why we used the AI circle to explore their progress so far. I really liked this way of doing a very informal evaluation of a project resulting in a rich picture, and also making it possible for the researchers to experience AI in a new way.

When I went to the International Military Testing Association conference at the Gold Coast in Australia in October 2007, I presented a new recruiting interview course my then-colleague Maria Mandahl and I had developed for the Swedish National Defence College. We used AI as a foundation, making the interviews focus on encouraging the interviewees to tell rich stories. Since the Gold Coast is not that far from the Sunshine Coast, I visited Liz Mellish, one of the authors of the special issue. She had developed some brilliant e-learning solutions for Appreciative Inquiry training I was most interested in.

Later Helena Holmström Olsson asked me to do an AI workshop with the undergraduate students in the Software Engineering and Management programme. The programme is project-oriented, so the workshop focused on making project teams agree upon a set of guidelines for how to conduct their work. It was inspiring to watch them starting very tentatively and then create some wonderful and engaging presentations at the end.

We have also continued empirical studies in our research group (we call it the ApplIncGroup since AI in the ICT world means Artificial Intelligence). Anders encouraged us to look into how to improve an existing method that was working well for project evaluation. We did not change much, but added an emphasis on the importance of identifying both strengths and areas for improvement. The new approach was used in several lessons-learned workshops and contrasted with data from previous ones. We were excited when the data showed a clear indication of the benefits of the changes and our new article has been approved for publication in an international journal.

During the process, we asked our research friends to spot relevant academic work. That is how we got in touch with Birgitta Bergvall-Kåreborn and Anna Ståhlbröst working at Luleå University in Sweden. They had contributed to Advances in Appreciative Inquiry, edited by Michel Avital. Agneta and I made good use of this reference when writing a chapter together with Jan Reed for

5 Bergvall-Kåreborn, B., Holst, M. and Ståhlbröst, A. ‘Creating a new leverage point for information systems development’. In M. Avital, R. Boland and D. Cooperrider (eds.) Designing information and organisations with a positive lens. Amsterdam : Elsevier JAI, 2008. p. 75-95 (Advances in Appreciative Inquiry; 2).
the Handbook of Research on Information Technology Management and Clinical Data Administration in Health Care.\(^6\)

ICT is a vital technology for bringing the world together and a key component in sustainable development, why all kinds of improvements especially regarding how to involve users are especially important. I really hope that more ICT researchers are inspired to use AI. For me it is not possible to study the effects of applying AI in software development by using traditional research approaches. That would be like measuring the effects of project-based education by letting the students do a multiple-choice test. Finally, I would like to take the opportunity to express my deepest thank to Lars Mathiassen who set me on this exiting journey which has taken me to around the world, changed my approach to ICT research and most of all generated lots of new friends!

Lena Holmberg

Combining Implementation and Evaluation in a Software Process Improvement Project: Interview with Agneta Nilsson, IT University, Gothenburg

Agneta Nilsson is currently a senior lecturer at the department of Applied IT at the University of Gothenburg and Chalmers University of Technology. She holds a PhD in Informatics from Göteborg University. Her research interests focus on IT implementation and change management in organizational contexts. Contact:agneta.nilsson@ituniv.se

1. What AI-related research have you recently been involved in?
In addition to the research we do together in the AppIncGroup, I have also applied AI in an EU project called ProTest. The project aims at developing new software development and testing tools in order to speed up and improve the process as well as products. This last year we have used AI during the implementation phase of one tool together with one of our partners. I designed and conducted workshops where the participants identified what works well already, what they would like to do more of and new ideas for improvement. Gradually we have introduced this new way of working as a way to generate and develop ideas.

The next step will be to introduce several new tools in a partner organization in Spain. They will start using the tools and together we will evaluate the use of them. Again focus is on what works well, what they would like more of and completely new ideas. We will also use the AI process for planning the project in terms of activities and schedule. This will start in October and go on for a year.

2. What surprised you the most during the work?
I remember when I did the first workshops in London, how amazed I was by how well the AI approach worked. Although I had very little experience of AI, it still generated so many good results. There was an air of energy in the room and a

There was an air of energy in the room and a positive atmosphere, making all the people very action-oriented.

positive atmosphere, making all the people very action-oriented. It was a very powerful experience!

3. Where can we read more about this research?
So far we have not had time to publish any articles from this work, and the main deliverables from the project are the software development and testing tools. However, I hope to write and publish several articles about the method we applied for implementing and evaluating the usage of the tools.

4. What will be your next step regarding applying AI in your academic work?
The next couple of months I will concentrate on developing an approach for the case study, where we will have four iterations with the company testing the tools and us doing the evaluation and improvements. It will be quite a challenge combining development and evaluation, and although I can use some of the work I did in the previous study some new aspects need to be achieved.

In my teaching I will introduce AI in a course on IT Management and Strategy. I started to do that last year by presenting AI as an alternative to traditional organisation development approaches. In addition to a lecture I also let the students participate in a AI workshop where they look into what a really good learning environment is. The results are gathered in a report that is sent to the programme management group as part of the course evaluation. This way the students participate in a workshop that has real impact.

5. ICT can play a pivotal role in developing a more sustainable world where economical, social and environmental issues are balanced. How do you think the combination of ICT and AI can be applied to achieve this?
No doubt ICT has an important role to play in the development of sustainable solutions to, for example, travelling. However, often it is not easy to find sustainable alternatives – to travelling, for example. This makes it even more important to find good ways to identifying best practice and make others apply it. This is where I see the biggest potential for AI: to act as a means for people to identify the good examples of ICT usage, to modify it and spread it to others. AI can help people to take actions and start making a difference.

Editors’ Note
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The next issue (February 2010) will be dedicated to practitioners appreciating AI research and suggesting ideas for AI researchers to pick up. Hopefully this can turn our column into a dialogue between researchers and practitioners. Please send suggestions and material to: jan.reed@unn.ac.uk or lmholmberg@gmail.com

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Subscription Information

**Australia**
Sue James info@bjseminars.com.au
Liz Mellish info@mellish.com.au

**Canada**
Western Gervase Bushe bushe@sfu.ca
Toronto Maureen McKenna maureenmckenna@sympatico.ca
Winnipeg Joyce Rankin jrankin39@shaw.ca

**Colombia**
Sara Inés Gómez sarinagom@cable.net.co

**Denmark**
Charlotte Dalsgaard cd@harbohus.dk
Mette Jacobsgaard 101572.622@compuserve.com
Henrik Kongsbak henrik@resonans.dk

**Germany**
Southern Germany Walter Bruck contact@wb-consult.de
Northern Germany Christoph Beck info@tricon-beratung.de
Northern Germany Dorothe Liebig dorothe.liebig@t-online.de

**Hong Kong**
Catriona Rogers c.rogers@re-authoringlives.com

**Italy**
Yvonne Bonner y.bonner@re.nettuno.it

**Scotland**
Margaret Wright mwright@resolution-scotland.com

**South Africa**
Bridget Woods bridget@fireglow.co.za

**Sweden**
Sven Sandstrom and Lisen Kebe sven@kebbe.se

**The Netherlands**
Joep de Jong joepc@mac.com
Maarten Thissen maarten@djehoty.com

**USA**
East Coast Marge Schiller margeschiller@yahoo.com
West Coast Steve Cato smcato@comcast.net

**AI Practitioner Editor/Publisher**
The editor/publisher is Anne Radford. She is based in London and can be reached at editor@aipractitioner.com.

The postal address for the publication is:
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**Purpose of AI Practitioner**
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