



Scientific Report

First name / Family name

Bridget Kane

Nationality

Irish

Name of the *Host Organisation*

NTNU

First Name / family name
of the *Scientific Coordinator*

Pieter Toussaint

Period of the fellowship

15/03/2013 to 14/03/2013



I – SCIENTIFIC ACTIVITY DURING MY FELLOWSHIP

The Fellowship allowed me to learn about the research being conducted at the School of Information and Computer Science (IDI), and the Norwegian Centre for Research on the Electronic Patient Record (NSEP), at NTNU in Trondheim, Norway.

Prof Pieter J Toussaint engaged with me in exploring ideas on the application of information and computer science in healthcare, and in medical teamwork settings in particular. I was also afforded the opportunity to learn about research being conducted at NSEP and IDI, and actively engage with the researchers there.

During the term of my Fellowship I was afforded the opportunity to deliver face-to-face lectures with students on both undergraduate and postgraduate programmes on the topic of HCI / CSCW in healthcare. I was also facilitated in engaging with staff in the hospital, and in interviewing them about their experience and views about working as part of a multidisciplinary team. I was invited to attend a number of clinical meetings, and I availed of the opportunities presented. Initial data from these interviews were presented at the 4th Workshop on Infrastructures in Healthcare in Tromso in June 2013. Other data remains to be published and papers are in progress.

Throughout my term at NTNU I participated in local workshops, seminars and attended oral defences when relevant to my research interest of the application of information communication technology in human-to-human communication in worksettings. Having the opportunity to discuss ideas with NTNU researchers was very valuable, and academically stimulating. It is my hope and expectation that our collaboration will continue into the future.

II – PUBLICATION(S) DURING MY FELLOWSHIP

Kane, B., P. J. Toussaint and S. Luz (2013). Shared Decision Making Needs a Communication Record. CSCW, San Antonio, Texas, ACM.

Abstract:

Increasing dependability in collaboration work among health professionals will directly improve patient outcomes, and reduce healthcare costs. Our research examines the development of a shared visual display to facilitate data entry and validation of an electronic record during multidisciplinary team meeting discussion, where specialists discuss patient symptoms, test results, and image findings. The problem of generating an electronic record for patient files that will serve as a record of collaboration, communication and a guide for later tasks is addressed through use of the shared visual display. Shortcomings in user-informed designed, structured data-entry screens became evident when in actual use. Time constraints prompt the synopsis of discussion in acronyms, free text, abbreviations, and the use of inferences. We demonstrate how common ground, team cohesiveness and the use of a shared visual display can improve dependability, but these factors can also provide a false sense of security and increase vulnerability in the patient management system.



II – PUBLICATION(S) DURING MY FELLOWSHIP *continued*

Kane, B., P. J. Toussaint and K. O'Byrne (2013). Informality and Teamwork. Workshop on Informality in Medical Work, at CSCW, SanAntonio, Texas, ACM.

Abstract:

This discussion paper considers examples of informal communication among multidisciplinary medical teams in the context of their weekly meeting. Informal exchanges are frequent, particularly at the beginnings and endings of meetings, are often private (1-2-1). This opportunity for synchronous face-to-face informal exchange is highly valued and reported to be a strong motivator for attendance at MDT meetings. The exchanges are both task and non-task related and tend to be conversational. We suggest that the informal communication we observe plays an important role in helping team cohesiveness.

Kane, B., K. Groth and P. Toussaint (2013). What Makes a Multidisciplinary Team (MDT), and How Do MDTs Work? Infrastructures in Healthcare. Tromsø, Norway.

Abstract:

We report on a comparison study of multidisciplinary team constitution and practices in three hospitals: one in each of three jurisdictions. Similarities and differences in day-to-day practices exist and we identify how technology can be employed to improve the person-to-person interaction, collaboration and the use of information, particularly image data. We identify support for MDT work is part of infrastructure, and we further identify the need for a framework for evaluation of this infrastructure that will take account of patient benefits from improved technologies being applied in the work setting.

Kane, B. and S. Luz (2013). "'Do No Harm": Fortifying MDT Collaboration in Changing Technological Times." International Journal of Medical Informatics **82**: 613-625.

Abstract:

Increasing dependability in collaboration work among health professionals will directly improve patient outcomes, and reduce healthcare costs. Our research examines the development of a shared visual display to facilitate data entry and validation of an electronic record during multidisciplinary team meeting discussion, where specialists discuss patient symptoms, test results, and image findings. The problem of generating an electronic record for patient files that will serve as a record of collaboration, communication and a guide for later tasks is addressed through use of the shared visual display. Shortcomings in user-informed designed, structured data-entry screens became evident when in actual use. Time constraints prompt the synopsis of discussion in acronyms, free text, abbreviations, and the use of inferences. We demonstrate how common ground, team cohesiveness and the use of a shared visual display can improve dependability, but these factors can also provide a false sense of security and increase vulnerability in the patient management system.



II – PUBLICATION(S) DURING MY FELLOWSHIP *continued*

Longo, L., B. Kane and L. Hederman (2012). Argumentation Theory in Health Care. The 25th International Symposium on Computer-Based Medical Systems (CBMS). Rome, IEEE.

Abstract:

Argumentation theory has been getting momentum in the health care arena thanks to its intuitive and modular way of aggregating clinical evidence and taking rational decisions. The basic principles of argumentation theory are described and applied in a sensible health scenario: the breast cancer recurrence problem. It is shown how to represent available clinical evidence in arguments, how to define defeat relations among them and how to create a formal argumentation framework. Argumentation semantics are then applied over the built framework to compute arguments justification status. It is demonstrated how this process can enhance the clinician decision-making process. A encouraging predictive capacity is compared against the accuracy rate of well-established machine learning techniques confirming the potential of argumentation theory in health care.

Presented to Workshop – Full publication in progress:

Kane, B., P. Toussaint and S. Luz (2012). Knowledge Generation and Capture at Multidisciplinary Medical Team Meetings. NordiCHI workshop on Knowledge-Based Interactive Environments. Copenhagen.

Abstract: This paper presents a scenario where rich knowledge is generated that has potential utility in several tasks and processes in a hospital, but finding mechanisms to capture this knowledge effectively is challenging.

III – ATTENDED SEMINARS, WORKHOPS, CONFERENCES

1) CBMS, Rome, June 21st and 22nd, 2012

<http://www.cbms2012.org/>

Chaired session and co-authored paper. Title of Paper:

Argumentation Theory in Health Care

Authors: Luca Longo, Bridget Kane, Lucy Hederman

2) Marie Curie Actions Conference, Dublin, 10th – 11th, July 2012 in conjunction with ESOF conference, Dublin, 11 – 15th July, 2012

<http://esof2012.org/about/marie-curie-actions-conference-2012/>

3) HelsIT, Trondheim, Norway, September 18th – 20th 2013

http://www.kith.no/templates/kith_WebPage_3803.aspx

Title of Presentation on Sept 20th:

Multidisciplinary team (mdt) working in Ireland - Challenges in applying technological support at meetings, Bridget Kane, NTNU



III – ATTENDED SEMINARS, Workshops, Conferences contd

4) NordiCHI, Copenhagen , October 14th – 17th, 2012

<http://www.nordichi2012.org/>

Workshop on

“Knowledge Generation and Capture at Multidisciplinary Medical Team Meetings”

Presented by B. Kane. Co-authored with Pieter Toussaint, NTNU

5) ABCDE Seminar, Sophia Antipolis, France, October 24th – 26th 2012

6) CSCW, San Antonio, Texas, USA, February 2013-08-07

<http://cscw.acm.org/2013/>

Workshop and Full Paper presented (See Publications)

Kane, B., P. J. Toussaint and S. Luz (2013). Shared Decision Making Needs a Communication Record. CSCW, San Antonio, Texas, ACM.

Kane, B., P. J. Toussaint and K. O'Byrne (2013). Informality and Teamwork. Workshop on Informality in Medical Work, at CSCW, SanAntonio, Texas, ACM.

Since my Fellowship expired in March 2013, I have participated in two conferences and presented work from my period at NTNU. These conferences were self-funded:

4th International Workshop on Infrastructures in Healthcare, Tromsø, Norway (June 13th and 14th). IEEE, CBMS 2013 in Porto, Portugal (June 20th – 22nd, 2013)

IV – RESEARCH EXCHANGE PROGRAMME (REP)

The two ERCIM consortium members that I arranged to visit were:

1) The Swedish Institute of Computer Science (SICS), in Stockholm, Sweden. Profs Annika Wærn, Kristina Höök and Barry Brown at the Interaction Laboratory of SICS facilitated my visit. During my week there I made presentations to staff and listened to others present their research work. I had the unique opportunity to get to know staff at the Interaction Laboratory, as well as other ERCIM Fellows who were being hosted at SICS.

2) Prof Wolfgang Prinz facilitated me at the Institute of Applied Information Technology (FIT) at Fraunhofer, Sankt Augustin ,Germany. The FIT is the centre from where the BSCW system was first developed, and I had the privilege of meeting staff who were part of the initial development of the collaborative tool. The stages in its development were explained and I was introduced to the latest development of its application for German surgeons to share experience and clinical cases among each other. Similarly to my visit to SICS, I had the opportunity to present myself and my research interests to staff at FIT and they reciprocated by explaining their research to me.

Both visits were highly productive. Since my visit I have met staff from SICS at CSCW conference in USA and I have been in correspondence with FIT staff on the possibility of submitting a research proposal to EU. I expect to collaborate with both centres in my future career.