

DANA M. PAVEL

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SUMMARY

My main expertise and research interests lie in areas related to context-aware computing, affective computing, software agents, smart environments, constraint-based programming, Semantic Web, and knowledge modeling and management.

My main strengths are: creativity, determination, technical leadership, system thinking, passion, curiosity, and foresight.

I like to interact with people from various areas, from research to business. I like to create systems for supporting as well as bettering humans, and look at ways to capture, interpret and visualize user context in a fun, engaging and evolving manner. I love to work in an environment where inter-disciplinary work is encouraged and where I can create and develop technologies aimed to have a positive impact on people's lives.

PROFESSIONAL EXPERIENCE

2013-present: Researcher, Centre for Process Excellence and Innovation, Judge Business School, University of Cambridge, UK

- ◆ Exploring how the platform I developed during my PhD (MyRoR) can be extended and applied to scenarios around stress management in work environments. Developing models and platform extensions for capturing stressors, stress symptoms as well as solutions for supporting organizations in detecting as well as addressing such issues;

2010-present: Visiting Researcher, Computer Lab, University of Cambridge, UK

- ◆ Working within Prof. Jean Bacon's group as part of the PAL project (2009-2012, <http://palproject.org.uk>), funded by TSB and EPSRC. Currently extending on my work on experience platforms for lifestyle management developed as part of the project as well as of my PhD;

2009-2012: Research Officer, University of Essex, Colchester, UK

- ◆ Major contributor to creating the proposal for the PAL project (total funding ~£2 millions). PAL project looked at implications of various future healthcare scenarios (both preventive and assistive) on networking, communication and application designs;
- ◆ Within the project, I lead the development of the project's guiding usage scenarios, and contributed to the system architecture and requirements work;
- ◆ My main research focus was on designing and developing a lifestyle management system aimed towards collecting, interpreting and presenting information to an end user within a self-reflective and interactive environment. The system I developed includes various design choices such as: integrating end users in the process of gathering and interpreting data, providing them with both abstract and detailed access to information, creating a story-inspired model and visualisation paradigm for representing and correlating collected data, allowing end users various levels of system customisation and data interpretation, and giving them full control over collected data. The work on designing and building the MyRoR system also included performing various user experiments (via an online questionnaire as well as based on exploratory hands-on study) in order to

better understand what people would like to see in their stories and how they would like to interact with them.

2005-2007: Research Manager, Nokia Research Center, Helsinki, Finland

- ◆ Principal level researcher focusing on context-aware systems, from sensing platforms to context modeling and middleware to creating various solutions;
- ◆ Research group manager, leading a group of 10 people focused on context mining and management, Semantic Web and context-aware systems;
- ◆ Participated and held leading positions in NRC internal research strategy, planning and vision processes;
- ◆ Created and managed collaborations with various universities, such as: MIT Media Lab (Prof. Roz Picard, Prof. Mitchel Resnick), Georgia Tech (Prof. Gregory Abowd), Columbia University (Prof. Henning Schulzrinne), CMU (Prof. Anind Dey), and University of Washington (Craig Warren-Smith);
- ◆ Created and lead TEKES-funded collaboration (worth 700K Euros) with Tampere University (Prof. Kaisa Väänänen-Vainio-Mattila) and Helsinki University of Technology (TKK) focused on issues around life-logging (<http://www.cs.tut.fi/ihte/projects/sharme/>);
- ◆ One of the main technical leaders in a cross-sites research project looking at extensive recordings of contextual data through mobile phones; my main research focus was on semantic knowledge/context modeling, reasoning, visualisations for annotated personal media, as well as creating various related concepts for prototyping.

2001-2005: Senior Research Engineer, Nokia Research Center, Boston, MA, USA

- ◆ Created, managed and contributed to projects in the areas of affective computing, context provisioning and modeling, remote sensing, Semantic Web, and ad-hoc communities;
- ◆ Created multiple contacts with relevant business people in Nokia through various discussions, presentations and workshops;
- ◆ Contributed to strategy and vision work in NRC and Nokia in areas related to context, location awareness, robotics, and metadata;
- ◆ Established multiple external contacts and transferred ideas gathered from universities inside Nokia;
- ◆ Built extensive IPR portfolio in the area of context awareness.

1999-2001: Research Engineer, Nokia Research Center, Boston, MA, USA

- ◆ Worked on various projects in areas of ubiquitous computing that involved software agents, RFID and touch-pad based interactions, affective computing, and constraint programming;
- ◆ Created own concepts and proposals (affective personal assistant);
- ◆ Created concepts videos;
- ◆ Won Achievement Award of NRC Software Technology Lab in 2001 (only 2 in NRC SWA per year).

1997-1999: Software Developer, Experimental Space Plasma Center, Durham, NH, USA

- ◆ Worked as part of the Equator-S project (coord. by Prof. Lynn Kistler) in implementing software for mining and performing error correction on data gathered from the Equator-S satellite.

Summer 1998: Summer Intern, Lucent Technologies, Warren, NJ, USA

- ◆ Worked in the Configurators Group (coord. Faiq Fazal) performing research in configuration problems, knowledge classification and product configurators;
- ◆ Studied the process of building a configurator for optical network applications using Trilogy modeling language.

1996-1999: Teaching Assistant/Research Assistant, Univ. of New Hampshire, Durham, NH, USA

- ◆ Teaching responsibilities: “Introduction to Scientific Programming”, the basics of C programming;
- ◆ Research responsibilities (Prof. Eugene Freuder’s group, funded by Lucent Technologies): performed research in the area of product configuration with a special emphasis on how to shorten the time of building a configurator and dealing with the long-time management of the configuration knowledge; implemented a Java-based mechanism that automated changes made to a configuration model during and after the modeling phase.

ACADEMIC BACKGROUND

2008-2013 (expected; thesis submitted Jan. 2013) PhD candidate, School of Computer Science and Electronic Engineering, University of Essex, Colchester, UK

- ◆ Thesis title: “MyRoR: Towards a story-inspired experience platform for lifestyle management scenarios”. There is a lot of value in the information we generate through our daily interaction with computing devices and this thesis presents the work I performed towards creating an experience platform aimed at lifestyle management scenarios. At the core of this work is a story-inspired paradigm for organising and presenting information that allows for dynamic and adaptive creation of abstract and concise information correlation, personalisation, and sharing. The main contributions of my PhD work consist of: (1) a design framework and realisation of a novel story-inspired paradigm for modelling, organising and presenting information within a lifestyle management system; (2) a design framework, architecture and realisation of a multi-parametric experience platform for lifestyle management scenarios that can capture varied information, store it, model it, process it, correlate it and present it to an end user at various levels of abstraction; (3) valuable user-level insights into experiencing such systems in order to create self-understanding.

1996-1998 Master of Science in Computer Science, University of New Hampshire, Durham, NH, USA

1990-1995 Engineer Diploma (MSc equivalent) in Control Engineering, University “Politehnica” of Bucharest, Romania

INTELLECTUAL PROPERTY

Granted patents:

- ◆ Patent number 7293271: Systems and Methods for Event Semantic Binding in Networks (D. Trossen, D. Pavel)
- ◆ Patent number 7142876 : Location dependent services (D. Trossen, D. Pavel)
- ◆ Patent number 7532596: Optimized information transfer associated with relocation of an IP session in a mobile communications system (D. Trossen, D. Pavel. G. Krishnamurthi,

H.M. Chaskar, R. G. L. Narayanan).

Published patent applications:

- ◆ Terminal and associated system, method and computer program product for obtaining the terminal location based upon connections of the terminal (D. Pavel, O. Lassila, D. Trossen) (2005)
- ◆ System, method and computer program product for facilitating appointment-related actions (D. Trossen, D. Pavel) (2004)
- ◆ Method, system and computer program to enable semantic mediation for SIP events through support of dynamically binding to and changing of application semantics of SIP events (D. Trossen, D. Pavel) (2006)
- ◆ Method, system and computer program to enable SIP event-based discovery of services and content within a community built on context information (D. Trossen, D. Pavel) (2005)
- ◆ Method, system and computer program to provide support for sporadic resource availability in SIP event environments (D. Trossen, D. Pavel) (2006)
- ◆ Trigger-based session completion using external parties (D. Trossen, D. Pavel) (2003)
- ◆ System and method for providing differential location services (D. Trossen, D. Pavel) (2005)
- ◆ Methods, apparatus and computer program product providing enhanced location-based services for mobile users (G. Krishnamurti, F. Reynolds, D. Pavel, D. Trossen) (2006)
- ◆ System, method and computer program product for providing differential location services with mobile-based location tracking (D. Trossen, D. Pavel) (2005)
- ◆ System and method for providing context-based dynamic speech grammar generation for use in search applications (S. Satish, D. Pavel) (2008)
- ◆ Method, system and computer program to enable querying of resources in a certain context by definition of SIP event package (D. Trossen, D. Pavel) (2005)
- ◆ System and associated terminal, method and computer program product for conveying context information and providing a context-based service upon the context information (D. Trossen, D. Pavel) (2005)

PROGRAM COMMITTEES

TPC member for NGMAST 2007-2012 conference

TPC member for CONTEXT 2005 & CONTEXT 2007 conference

TPC member for Workshop on Context Awareness at MobiSys 2004 conference

PUBLICATIONS

Peer-reviewed:

- ◆ D. Trossen, D. Pavel, "AIRS: A Mobile Sensing Platform for Lifestyle Management Research and Applications". In the 5th International Conference on MOBILE Wireless MiddleWARE, Operating Systems, and Applications (MobilWare 2012), November 2012, Berlin, Germany.
- ◆ J. Bacon, J. Singh, D. Trossen, D. Pavel, A. Bontozoglou, N. Vastardis, K. Yang, S. Pennington, S. Clarke, G. Jones, "Personal and Social Communication Services for Health and Lifestyle Monitoring". In the First International Conference on Global Health Challenges (Global Health 2012), October 2012, Venice Italy.
- ◆ D. Pavel, V. Callaghan, A.K. Dey, F. Sepulveda, M. Gardner, "The Story of Our Lives: From

Sensors to Stories in Self-monitoring Systems". In the 4th Computer Science and Electronic Engineering Conference (CEEC'12), Colchester, UK, September 2012.

- ◆ D. Pavel, V. Callaghan and A.K. Dey, "Supporting Wellbeing through Improving Interactions and Understanding in Self-Monitoring Systems". Chapter in the Handbook of Ambient Assisted Living - Technology for Healthcare, Rehabilitation and Well-being, IOS Press, Volume 11, 2012.
- ◆ D. Pavel, V. Callaghan and A. K. Dey, "From self-monitoring to self-understanding: Going beyond physiological sensing for supporting wellbeing". International Workshop on Pervasive Computing Paradigms for Mental Health (MindCare 2011), Pervasive Health 2011 conference, Dublin, May 2011.
- ◆ D. Pavel, V. Callaghan and A. K. Dey, "Looking back in wonder: How self-monitoring technologies can help us better understand ourselves". In 6th International conference on Intelligent Environments 2010, Kuala Lumpur, Malaysia, July 2010.
- ◆ D. Trossen, D. Pavel, K. Guild, J. Bacon, J. Singh, "Information-centric Pervasive Healthcare Platforms". In Pervasive Health 2010 conference, Munich, Germany, March 2010.
- ◆ D. Pavel, V. Callaghan, A. K. Dey, "Democratization of healthcare through self-monitoring technologies". In Pervasive Health 2010 conference, Munich, Germany, March 2010.
- ◆ D. Pavel, V. Callaghan, A.K. Dey, and M. Gardner, "Supporting Introspective Behaviours through Technology", Intelligent Environments conference, Barcelona, 2009.
- ◆ T. Olsson, M. Lehtonen, D. Pavel and K. Väänänen-Vainio-Mattila, "User-centered design of a mobile application for sharing life memories", in Proceedings of the 4th international conference on mobile technology, applications, and systems and the 1st international symposium on Computer human interaction in mobile technology, 2007.
- ◆ D. Trossen & D. Pavel, "NORS: An Open Source Platform to Facilitate Participatory Sensing with Mobile Phones", Mobiquitous 2007 conference, Philadelphia, PA, USA, August 2007.
- ◆ D. Trossen & D. Pavel, "Enabling Data Sharing Among Dispersed Sensor Deployments Through Participatory Sensing with Mobile Devices", Workshop on Data Sharing and Interoperability on World-wide Sensor Web (DSI 2007), Cambridge, MA, USA, April 2007.
- ◆ D. Trossen, D. Pavel et al., "Sensor Networks, Wearable Computing and Healthcare Applications", IEEE Pervasive Computing, vol. 6, no. 2, pp. 58-61, Apr-June 2007, doi:10.1109/MPRV.200743.
- ◆ S. Sathish, D. Pavel & D. Trossen, "Context Service Framework for the Mobile Internet", FUMCA workshop at Ubicomp 2006, Irvine, CA, USA.
- ◆ D. Pavel, D. Trossen, "Context Provisioning for Future Service Environments", International Multi-Conference on Computing in the Global Information Technology, ICCGI06, Bucharest, Romania, July 2006
- ◆ K. Arabshian, H. Schulzrinne, D. Trossen & D. Pavel, "GloServ: Global Service Discovery using the OWL Web Ontology Language", IEEE Workshop on Intelligent Environments, Essex (UK), June 2005.
- ◆ D. Trossen & D. Pavel, "Service Discovery & Availability Subscriptions Using the SIP Event Framework", ICC2005 conference, Seoul, Korea, May 2005.
- ◆ D. Trossen, D. Pavel, "Building a Ubiquitous Platform for Remote Sensing Using Smartphones," Mobiquitous, pp.485-489, The Second Annual International Conference on Mobile and Ubiquitous Systems: Networking and Services, 2005.
- ◆ D. Pavel & D. Trossen, "Context Provisioning and SIP Events", Workshop on Context

Awareness, MobiSys2004 Conference, June 2004.

- ◆ D. Pavel & D. Trossen, "Context-aware Resource Pre-Allocation in Nomadic Applications using a Service Provider Approach", IEEE 3G Wireless 2003, San Francisco, CA, USA, May 2003.
- ◆ D. Pavel & D. Trossen, "Context-Awareness and SIP: Enabling User-tailored Communication in the Internet", short paper in the Pervasive 2002 conference.

Nokia internal research magazine:

- ◆ D. Pavel, D. Trossen, Z. Antoniou, "It's a small world when connecting through ad-hoc communities", Advance Magazine, NRC Advance magazine, 2005.
- ◆ D. Pavel, J. Hemanus, "What's mood got to do with this?", NRC Advance Magazine, 2003.
- ◆ P. Huuskonen, D. Pavel and U. Tuomela, "Context-awareness: A new dimension for communication", NRC Advance magazine, 2003.
- ◆ D. Pavel., D. Trossen , "Context-aware resource pre-allocation in nomadic applications using a service provider approach", NRC Advance magazine, 2003.
- ◆ D. Trossen, D. Pavel, "Context-aware session creation in SIP environments", NRC Advance magazine, 2002.
- ◆ O. Lassila, D. Pavel, "Ubiquitous computing: invisible, anytime, anywhere", NRC Advance magazine, 2001.

Others:

- ◆ Invited [seminar](#), Engineering Design Centre, University of Cambridge, March 2012.
- ◆ Invited [presentation](#) for the "[Social Sensing: Mobile sensing meets social science](#)" workshop, University of Cambridge, March 2011.
- ◆ "[Can 'Spiritual Computing' Drive Web 3.0?](#)" by Michael Hickins, article appeared in internetnews.com on July 28, 2006.

PROGRAMMING SKILLS

- ◆ Java, PHP, Javascript, HTML, C++, C.

REFERENCES

Available upon request.