Kris Luyten, Ph.D.

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Employment History

2019 – · · · · **Full Professor.** Expertise Center for Digital Media, Computer Science and Human-Computer Interaction, Hasselt University.

2018 – 2021 **Core Lab Manager.** Cluster Flexible Assembly, Flanders Make - Hasselt University.

2016 – · · · · **Deputy Managing Director.** Expertise Center for Digital Media - A research center at Hasselt University.

2006 – 2018 **Assistant and Associated Professor.** Expertise Center for Digital Media, Computer Science and Human-Computer Interaction, Hasselt University.

2010 – 2015 **Co-founder and Managing Partner.** TinkerTouch.

2000 – 2005 **Research Assistant.** Expertise Center for Digital Media, Computer Science and Human-Computer Interaction, Hasselt University. *Research on Model-Driven Design and Development of Interactive Systems.*

March/April 2000 **Software Developer.** Cegeka – Cegeka Medical. *Secure Printing of Medical Prescriptions (C++).*

August 1999 **Software Developer.** Cegeka – Cegeka Medical. *End-User Query Composition to explore Patient Database (Java, Sybase).*

August 1998 **Software Developer.** Cegeka – Cegeka Medical. *Development of a Speech Interface to enter Patient Data (C++, L&H speech engine, LH7).*

Education

2000 – 2004 **Ph.D. Applied Computer Science - Human-computer Interaction**, Hasselt University.
Thesis title: *Dynamic User Interface Generation for Mobile and Embedded Systems with Model-Based User Interface Development.*

1996 – 2000 **M.Sc. (Lic.) Computer Science and Knowledge Engineering** , transnational University of Limburg (tUL): Hasselt University and Maastricht University.

Teaching and Teaching Innovation

Courses

- **Information Visualisation**
- **Advanced Object Oriented Programming**
- **Software Engineering**
- **Human-AI Interaction**
- **Medical Information Systems**
- **User Interface Software and Technology**

Teaching and Teaching Innovation (continued)

Teaching Innovation Projects

- **Bibliotheek 2.0** - 01.01.2015 31.12.2016 - Fab Labs and Makerspaces as collaborative learning spaces for creative skill development
- **In het wiel van Odiel: Van borsteltrekker tot wielrenner** - 01.05.2010 28.02.2011 - a DIY approach where youngster create mobile games with historical content and share their games with classmates.
- **EPICS: E-learning Platform In the Cultural heritage Sector** - 01.10.2009 30.09.2011 - IBBT Icon project
- **RITCHIE: een kenniscentrum voor mobiele ICT toepassingen binnen de erfgoed- en cultuurtoeristische sector.** - 01.09.2008 30.11.2010 - Educational mobile guides for a.o. the Gallo-Roman Museum (Tongeren), Middelheim museum (Antwerp), Royal Belgian Institute for Natural Sciences (Brussels)
- **Mutable: The Multi-Media Multi-Touch Table** - 01.01.2008 31.12.2009 - IBBT GBO project

PhD Students

As Advisor

- **dr. Sven Coppers** (2021, co-advisors = prof. dr. Davy Vanacken, prof. dr. Karin Coninx): Intelligibility and Control for Context-Aware IoT Applications.
- **dr. Kashyap Todi** (2018, co-advisor = prof. dr. Andrew Vande Moere): Improving and Facilitating the Placement of Interactive Elements on User Interfaces.
- **prof. dr. Raf Ramakers** (2016, co-advisor = prof. dr. Johannes Schöning): End-User Control over Physical User-Interfaces: From Digital Fabrication to Real-Time Adaptability.
- **dr. Geert Vanderhulst** (2010, co-advisor = prof. dr. Karin Coninx): Development and Deployment of Interactive Pervasive Applications for Ambient Intelligent Environments.
- **dr. Joël Vogt** (2013, advised together with prof. dr. Andreas Meier): Requirements Elicitation and System Specification of Assistive Systems for People with Mild Dementia.
- **dr. Sean Chiew Seng Tan** (2014, co-advisor = prof. dr. Karin Coninx): Enabling Empathic Communication in Ubiquitous Computing Environments to Improve Interaction between People.

As Co-Advisor

- **dr. Eva Geurts** (2019, advisor = prof. dr. Karin Coninx): Exploring Mobile Interactive Applications to Increase Patient Motivation in Rehabilitation
- **dr. Steven Nagels** (2019, advisor = prof. dr. Wim Deferme, other co-advisor = prof. dr. Ronald Thoelen): Electronic Devices which stretch like Rubber Bands: A holistic Approach to Materials and Fabrication Methods for Stretchable Electronics.
- **dr. Supraja Sankaran** (2018, advisor = prof. dr. Karin Coninx, second co-advisor = prof. dr. Paul Dendale): HeartHab: From Persuasion to Self-management in Cardiac Tele-rehabilitation.
- **dr. Marisela Gutierrez Lopez** (2018, advisor = prof. dr. Karin Coninx, second co-advisor = prof. dr. Mieke Haesen): Techniques and Artefacts for Documenting Design Rationale Among Multidisciplinary Design Teams.
- **dr. Fredy Cuenca Lucero** (2016, advisor = prof. dr. Karin Coninx): Towards a composite event-based language for describing multimodal interactions.
- **dr. Jo Vermeulen** (2014, advisor = prof. dr. Karin Coninx): Designing for Intelligibility and Control in Ubiquitous Computing Environments — Professor at Aarhus University
- **dr. Davy Vanacken** (2012, advisor = prof. dr. Karin Coninx): Touch-based interaction and collaboration in walk-up-and-use and multi-user environments. — post-doc researcher at Hasselt University

PhD Students (continued)

- **dr. Petr Aksenov** (2012, advisor = prof. dr. Karin Coninx): The Variability of Location Context in Pervasive Environments: Modelling, Representation and Visualisation. — post-doc in the Urban Science and Systems group at the TU/e
- **dr. Nasim Mahmud** (2012, advisor = prof. dr. Karin Coninx): Exploiting context-awareness and Social Interaction to Provide Help in Large-scale Environments. — Post-doc researcher in the Dynamics Lab at the University College Dublin.
- **dr. Mieke Haesen** (2011, advisor = prof. dr. Karin Coninx): User-Centered Process Framework and Techniques to Support the Realization of Interactive Systems by Multi-Disciplinary Teams. — IOF post-doc researcher at Hasselt University
- **dr. Jan Meskens** (2011, advisor = prof. dr. Karin Coninx): Tool Support for Designing, Managing and Optimizing Multi-Device User Interfaces. — Sievax

Selected Research Publications

Journal Articles

1. Coppers, S., Vanacken, D., & Luyten, K. (2022). Fortclash: Predicting and mediating unintended behavior in home automation. *Proc. ACM Hum. Comput. Interact.*, *6*(EICS), 154:1–154:20. https://doi.org/10.1145/3532204
2. Luyten, K., Palanque, P. A., Quigley, A. J., & Winckler, M. (2022). Engineering interactive computing systems 2022: Editorial introduction. *Proc. ACM Hum. Comput. Interact.*, *6*(EICS), 149:1–149:3. https://doi.org/10.1145/3532089
3. van Deurzen, B., Bruyninckx, H., & Luyten, K. (2022). Choreobot: A reference framework and online visual dashboard for supporting the design of intelligible robotic systems. *Proc. ACM Hum. Comput. Interact.*, *6*(EICS), 151:1–151:24. https://doi.org/10.1145/3532201
4. Navarre, D., Palanque, P. A., Coppers, S., Luyten, K., & Vanacken, D. (2021). Model-based engineering of feedforward usability function for GUI widgets. *Interact. Comput.*, *33*(1), 73–91. https://doi.org/10.1093/iwcomp/iwab014
5. Coppers, S., Vanacken, D., & Luyten, K. (2020). Fortniot: Intelligible predictions to improve user understanding of smart home behavior. *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.*, *4*(4), 124:1–124:24. https://doi.org/10.1145/3432225
6. Todi, K., Jokinen, J., Luyten, K., & Oulasvirta, A. (2020). Individualising graphical layouts with predictive visual search models. *ACM Trans. Interact. Intell. Syst.*, *10*(1), 9:1–9:24. https://doi.org/10.1145/3241381
7. Veuskens, T., Luyten, K., & Ramakers, R. (2020). Rataplan: Resilient automation of user interface actions with multi-modal proxies. *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.*, *4*(2), 60:1–60:23. https://doi.org/10.1145/3397329
8. Coppers, S., Luyten, K., Vanacken, D., Navarre, D., Palanque, P. A., & Gris, C. (2019). Fortunettes: Feedforward about the future state of GUI widgets. *PACMHCI*, *3*(EICS), 20:1–20:20. https://doi.org/10.1145/3331162
9. Sankaran, S., Luyten, K., Hansen, D., Dendale, P., & Coninx, K. (2019). Enhancing patient motivation through intelligibility in cardiac tele-rehabilitation. *Interact. Comput.*, *31*(2), 122–137. https://doi.org/10.1093/iwc/iwz008
10. Vandeghinste, V., Vanallemeersch, T., Augustinus, L., Bulté, B., Eynde, F. V., Pelemans, J., Verwimp, L., Wambacq, P., Heyman, G., Moens, M., der Lek-Ciudin, I. V., Steurs, F., Terryn, A. R., Lefever, E., Tezcan, A., Macken, L., Hoste, V., Daems, J., Buysschaert, J., … Luyten, K. (2019). Improving the

translation environment for professional translators. *Informatics*, *6*(2), 24. https://doi.org/10.3390/informatics6020024

11 Strobbe, M., Laere, O. V., Ongenae, F., Dauwe, S., Dhoedt, B., Turck, F. D., Demeester, P., & Luyten, K. (2012). Novel applications integrate location and context information. *IEEE Pervasive Comput.*, *11*(2), 64–73. https://doi.org/10.1109/MPRV.2011.60

12 Shaer, O., Jacob, R. J. K., Green, M., & Luyten, K. (2009). Introduction to the special issue on UIDL for next-generation user interfaces. *ACM Trans. Comput. Hum. Interact.*, *16*(4), 16:1–16:3. https://doi.org/10.1145/1614390.1614391

13 Schroyen, J., Gabriëls, K., Teunkens, D., Robert, K., Luyten, K., & Coninx, K. (2007). Beyond mere information provisioning: A handheld museum guide based on social activities and playful learning. *Nordisk Museologi*, (1), 30–45.

Conference Proceedings

1 Ramakers, R., Leen, D., Kim, J., Luyten, K., Houben, S., & Veuskens, T. (2023). Measurement patterns: User-oriented strategies for dealing with measurements and dimensions in making processes (A. Schmidt, K. Väänänen, T. Goyal, P. O. Kristensson, A. Peters, S. Mueller, J. R. Williamson, & M. L. Wilson, Eds.). In A. Schmidt, K. Väänänen, T. Goyal, P. O. Kristensson, A. Peters, S. Mueller, J. R. Williamson, & M. L. Wilson (Eds.), *Proceedings of the 2023 CHI conference on human factors in computing systems, CHI 2023, hamburg, germany, april 23-28, 2023*, ACM. https://doi.org/10.1145/3544548.3581157

2 Leen, D., Veuskens, T., Luyten, K., & Ramakers, R. (2019). Jigfab: Computational fabrication of constraints to facilitate woodworking with power tools (S. A. Brewster, G. Fitzpatrick, A. L. Cox, & V. Kostakos, Eds.). In S. A. Brewster, G. Fitzpatrick, A. L. Cox, & V. Kostakos (Eds.), *Proceedings of the 2019 CHI conference on human factors in computing systems, CHI 2019, glasgow, scotland, uk, may 04-09, 2019*, ACM. https://doi.org/10.1145/3290605.3300386

3 Coppers, S., den Bergh, J. V., Luyten, K., Coninx, K., der Lek-Ciudin, I. V., Vanallemeersch, T., & Vandeghinste, V. (2018). Intellingo: An intelligible translation environment (R. L. Mandryk, M. Hancock, M. Perry, & A. L. Cox, Eds.). In R. L. Mandryk, M. Hancock, M. Perry, & A. L. Cox (Eds.), *Proceedings of the 2018 CHI conference on human factors in computing systems, CHI 2018, montreal, qc, canada, april 21-26, 2018*, ACM. https://doi.org/10.1145/3173574.3174098

4 Nagels, S., Ramakers, R., Luyten, K., & Deferme, W. (2018). Silicone devices: A scalable DIY approach for fabricating self-contained multi-layered soft circuits using microfluidics (R. L. Mandryk, M. Hancock, M. Perry, & A. L. Cox, Eds.). In R. L. Mandryk, M. Hancock, M. Perry, & A. L. Cox (Eds.), *Proceedings of the 2018 CHI conference on human factors in computing systems, CHI 2018, montreal, qc, canada, april 21-26, 2018*, ACM. https://doi.org/10.1145/3173574.3173762

5 Todi, K., Jokinen, J., Luyten, K., & Oulasvirta, A. (2018). Familiarisation: Restructuring layouts with visual learning models (S. Berkovsky, Y. Hijikata, J. Rekimoto, M. M. Burnett, M. Billinghurst, & A. Quigley, Eds.). In S. Berkovsky, Y. Hijikata, J. Rekimoto, M. M. Burnett, M. Billinghurst, & A. Quigley (Eds.), *Proceedings of the 23rd international conference on intelligent user interfaces, IUI 2018, tokyo, japan, march 07-11, 2018*, ACM. https://doi.org/10.1145/3172944.3172949

6 Lopez, M. G., Rovelo, G., Haesen, M., Luyten, K., & Coninx, K. (2017). Capturing design decision rationale with decision cards (R. Bernhaupt, G. Dalvi, A. Joshi, D. K. Balkrishan, J. O'Neill, & M. Winckler, Eds.). In R. Bernhaupt, G. Dalvi, A. Joshi, D. K. Balkrishan, J. O'Neill, & M. Winckler (Eds.), *Human-computer interaction - INTERACT 2017 - 16th IFIP TC 13 international conference, mumbai, india, september 25-29, 2017, proceedings, part I*, Springer. https://doi.org/10.1007/978-3-319-67744-6_29

7 Luyten, K., Degraen, D., Ruiz, G. A. R., Coppers, S., & Vanacken, D. (2016). Hidden in plain sight: An exploration of a visual language for near-eye out-of-focus displays in the peripheral view (J. Kaye,

A. Druin, C. Lampe, D. Morris, & J. P. Hourcade, Eds.). In J. Kaye, A. Druin, C. Lampe, D. Morris, & J. P. Hourcade (Eds.), *Proceedings of the 2016 CHI conference on human factors in computing systems, san jose, ca, usa, may 7-12, 2016*, ACM. https://doi.org/10.1145/2858036.2858339

8 Ramakers, R., Todi, K., & Luyten, K. (2015). Paperpulse: An integrated approach for embedding electronics in paper designs (B. Begole, J. Kim, K. Inkpen, & W. Woo, Eds.). In B. Begole, J. Kim, K. Inkpen, & W. Woo (Eds.), *Proceedings of the 33rd annual ACM conference on human factors in computing systems, CHI 2015, seoul, republic of korea, april 18-23, 2015*, ACM. https://doi.org/10.1145/2702123.2702487

9 Dreessen, K., Schepers, S., Leen, D., Luyten, K., Weyer, T. D., & Taelman, J. (2014). Break-it, hack-it, make-it: The 'hack-a-thing' workshop series as a showcase for the integration of creative thinking processes into fablab genk, In *The 5th sts italia conference – a matter of design. making society through science and technology*.

10 Ramakers, R., Schöning, J., & Luyten, K. (2014). Paddle: Highly deformable mobile devices with physical controls (M. Jones, P. A. Palanque, A. Schmidt, & T. Grossman, Eds.). In M. Jones, P. A. Palanque, A. Schmidt, & T. Grossman (Eds.), *CHI conference on human factors in computing systems, chi'14, toronto, on, canada - april 26 - may 01, 2014*, ACM. https://doi.org/10.1145/2556288.2557340

11 Raymaekers, L., Vermeulen, J., Luyten, K., & Coninx, K. (2014). Game of tones: Learning to play songs on a piano using projected instructions and games (M. Jones, P. A. Palanque, A. Schmidt, & T. Grossman, Eds.). In M. Jones, P. A. Palanque, A. Schmidt, & T. Grossman (Eds.), *CHI conference on human factors in computing systems, chi'14, toronto, on, canada - april 26 - may 01, 2014, extended abstracts*, ACM. https://doi.org/10.1145/2559206.2574799

12 Luyten, K., Coninx, K., Flerackers, E., Gabriëls, K., Robert, K., Schroyen, J., & Teunkens, D. (2011). Idiscover: Towards the next generation of contextualised mobile museum guides [9th Culture and Computer Science conference (KuI '11)], In *Proceedings of the 9th culture and computer science conference*, Verlag Werner Hülsbusch. 9th Culture and Computer Science conference (KuI '11).

13 Schneider, J., Derboven, J., Luyten, K., Vleugels, C., Bannier, S., Roeck, D. D., & Verstraete, M. (2010). Multi-user multi-touch setups for collaborative learning in an educational setting (Y. Luo, Ed.). In Y. Luo (Ed.), *Cooperative design, visualization, and engineering - 7th international conference, CDVE 2010, calvia, mallorca, spain, september 19-22, 2010. proceedings*, Springer. https://doi.org/10.1007/978-3-642-16066-0_28

14 Gabriëls, K., Luyten, K., Robert, K., Schroyen, J., Teunkens, D., Coninx, K., Flerackers, E., & Manshoven, E. (2009). The design of context-specific educational mobile games, In *Museums and the web 2009: Proceedings*.

15 Luyten, K., Schroyen, J., Robert, K., Gabriëls, K., Teunkens, D., Coninx, K., Flerackers, E., & Manshoven, E. (2008). Collaborative gaming in the gallo-roman museum to increase attractiveness of learning cultural heritage for youngsters [International conference on Fun and Games], In *Extended abstracts of the international conference on fun and games 2008*. International conference on Fun and Games.

16 Schroyen, J., Gabriëls, K., Luyten, K., Teunkens, D., Robert, K., Coninx, K., Flerackers, E., & Manshoven, E. (2008). Training social learning skills by collaborative mobile gaming in museums (M. Inakage & A. D. Cheok, Eds.). In M. Inakage & A. D. Cheok (Eds.), *Proceedings of the international conference on advances in computer entertainment technology, ACE 2008, yokohama, japan, december 3-5, 2008*, ACM. https://doi.org/10.1145/1501750.1501760

17 Van Loon, H., Gabriëls, K., Teunkens, D., Robert, K., Luyten, K., & Coninx, K. (2007). Supporting social interaction: A collaborative trading game on pda, In *Museums and the web 2007: Proceedings*.

18 Luyten, K., Loon, H. V., Teunkens, D., Gebriels, K., Coninx, K., & Manshoven, E. (2006). Archie: Disclosing a museum by a socially-aware mobile guide, In *The 7th international symposium on virtual reality, archaeology and cultural heritage*.

19 Luyten, K., Van Loon, H., Gabriëls, K., Teunkens, D., Robert, K., Coninx, K., & Manshoven, E. (2006). Designing for interaction: Socially-aware museum handheld guides, In *Nodem 06 - digital interpretation in cultural heritage, art and science*, Nodem.

Editorial work

1 Luyten, K., & Palanque, P. A. (Eds.). (2016). *Proceedings of the 8th ACM SIGCHI symposium on engineering interactive computing systems, EICS 2016, brussels, belgium, june 21-24, 2016*, ACM. https://doi.org/10.1145/2933242

2 Forbrig, P., Dewan, P., Harrison, M., & Luyten, K. (Eds.). (2013). *ACM SIGCHI symposium on engineering interactive computing systems, eics'13, london, united kingdom - june 24 - 27, 2013*, ACM. http://dl.acm.org/citation.cfm?id=2494603

3 Paternò, F., de Ruyter, B. E. R., Markopoulos, P., Santoro, C., van Loenen, E., & Luyten, K. (Eds.). (2012). *Ambient intelligence - third international joint conference, ami 2012, pisa, italy, november 13-15, 2012. proceedings*, Springer, Vol. 7683. https://doi.org/10.1007/978-3-642-34898-3

Editorial work

1 Luyten, K., & Palanque, P. A. (Eds.). (2016). *Proceedings of the 8th ACM SIGCHI symposium on engineering interactive computing systems, EICS 2016, brussels, belgium, june 21-24, 2016*, ACM. https://doi.org/10.1145/2933242

2 Forbrig, P., Dewan, P., Harrison, M., & Luyten, K. (Eds.). (2013). *ACM SIGCHI symposium on engineering interactive computing systems, eics'13, london, united kingdom - june 24 - 27, 2013*, ACM. http://dl.acm.org/citation.cfm?id=2494603

3 Paternò, F., de Ruyter, B. E. R., Markopoulos, P., Santoro, C., van Loenen, E., & Luyten, K. (Eds.). (2012). *Ambient intelligence - third international joint conference, ami 2012, pisa, italy, november 13-15, 2012. proceedings*, Springer, Vol. 7683. https://doi.org/10.1007/978-3-642-34898-3

Involvement in Recent Research Projects

Flanders AI Research Programme

- **WP3 on Interaction, personalization and recommendation** https://www.flandersairesearch.be/en/research/research-challenges/human-like-ai (as a PI)

Flanders Make projects

- **PROROB: VR/AR based robot trajectory programming** (as PI)
- **FAMAR: Faster assembly and maintenance through augmented reality** (as PI)
- **Flexas-VR: Design Framework for flexible assembly with operator VR validation** (as PI)
- **OperatorKnowledge: Automated Creation of Digital Assembly Instructions by Operator Driven Knowledge Capturing** (as PI)
- **OperatorAssist: A Digital Assistant for assembly and manufacturing operators** (as collaborator)

TETRA

- **eXplainable AI for end users and developers** (as collaborator)

FWO

- **End-User Development of Intelligible Internet-of-Things Objects and Applications.** (as PI)

Involvement in Recent Research Projects (continued)

Flemish Government - NextGenerationEU / Veerkrachtfonds

- **MAXVR-INFRA: a scalable and flexible infrastructure to support the transformation toward mixed reality workspaces** (as coordinator)

Digital Europe Programme

- **Flanders Artificial Intelligence European Digital Innovation Hub** (as PI)

Experience and Awards

Service to the local community

- Co-Founder of **Fab Lab Genk**.
- Steering Committee member of the **UHasselt/PXL MakerSpace**.

Service to the research community

- **CHI 2008** Work-in-Progress co-chair.
- **EICS 2011, EICS 2013, EICS 2022 and EICS 2023** full paper co-chair.
- **EICS 2016 and EICS 2018** general co-chair.
- **TAMODIA 2006** program chair.
- **AMI 2012** short paper co-chair.

Professional Roles

2011-now
- **ACM SIGCHI Engineering Interactive Computing Systems conference series** member of the steering committee.

2010-now
- **IFIP workgroup 2.7 User Interface Engineering** member.

2017-2020
- **ACM SIGCHI Engineering Interactive Computing Systems conference series** steering committee chair.

2016-2019
- **ACM SIGCHI conferences board** member.

Awards and Achievements

2018
- **Best Paper Award**: Have You Met Your METs? – Enhancing Patient Motivation to Achieve Physical Activity Targets in Cardiac Tele-rehabilitation (Best Paper Award), Supraja Sankaran, Kris Luyten, Dominique Hansen, Paul Dendale, Karin Coninx, 32nd British Computer Society Human Computer Interaction Conference (British HCI) 2018, July 2-6, Belfast, Northern Ireland, 2018

2017
- **Reviewers' Choice Award**: Capturing Design Decision Rationale with Decision Cards, Marisela Gutierrez Lopez, Gustavo Rovelo Ruiz, Mieke Haesen, Kris Luyten, Karin Coninx, The 16th IFIP TC.13 International Conference on Human-Computer Interaction – Interact 2017, Mumbai, India, September 25-29, 2017 `[~29% acceptance (67/213)]`

2013
- **Best Paper Honourable Mention Award**: Crossing the Bridge over Norman's Gulf of Execution: Revealing Feedforward's True Identity, Nominated for CHI2013 Best Paper Award, Jo Vermeulen, Kris Luyten, Elise van den Hoven, Karin Coninx, In The ACM SIGCHI Conference on Human Factors in Computing Systems, CHI 2013, Paris, France, April 27 – May 2, 2013 `[~20% acceptance (393/1963)]`

Experience and Awards (continued)

2011 **Best Paper Award**:A unified scalable Model of User Localisation with Uncertainty Awareness for large-scale Pervasive Environments (best paper award), Petr Aksenov, Kris Luyten and Karin Coninx, Fifth International Conference on Next Generation Mobile Applications, Services and Technologies (NGMAST 2011), Cardiff, Wales, UK, September 14-16, 2011