
Personal Information

Name Dr Arindam Dey
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Education

- 03/2009–08/2013 **Doctor of Philosophy (Information Technology)**, *University of South Australia, School of Information Technology and Mathematical Sciences, Adelaide, Australia.*
Thesis Title: **Perceptual Characteristics of Visualizations for Occluded Objects in Hand-held Augmented Reality**. This thesis, based on extensive user experience research, provides a set of design recommendations for handheld augmented reality user interfaces equipped with visualizations for occluded objects. Supervised by: Dr Christian Sandor and Prof. Bruce H. Thomas.
- 12/2010–3/2011 **Intern Student**, *Technische Universität München, Fakultät für Informatik, Munich, Germany.*
Worked on three user experience projects. In the first project, we evaluated a 2D user interface on a multi-touch tabletop display for managing mass casualty incidents. In the second project, we designed and evaluated novel interaction techniques for virtual environments using a mobile phone. In the third project, we have evaluated novel acknowledgment and data collection methods for optical see-through head mounted display calibration for augmented reality. Supervised by: Prof. Gudrun Klinker (PhD).
- 08/2002–08/2006 **Bachelor of Technology (Computer Science & Engineering)**, *West Bengal University of Technology, Kolkata, India.*
Undertaken a project on Digital Watermarking using C, where we developed a system to digitally watermark a document in various formats. Supervised by: Dr Monalisa Banerjee.
- 06/2005–07/2005 **Intern Student**, *School of Information Technology, Indian Institute of Technology (IIT), Kharagpur, India.*
We developed a web based application to conduct on-line surveys and examinations in various fields. Supervised by: Dr D.K. Nanda and Dr S.K. Ghosh.

Scholarships & Grants

- 12/2010 **Internship Scholarship**, *Technische Universität München, Fakultät für Informatik, Munich, Germany.*
Awarded to selected interns valuing EURO 2,500.
- 04/2010 **International Travel Grant**, *University of South Australia and School of Computer and Information Science, Adelaide, Australia.*
Awarded to selected candidates for an international internship covering all expenses of the trip valuing AUD 5,000.

03/2009 **University President's Scholarship**, *University of South Australia, Division of Information Technology, Engineering and the Environment*, Adelaide, Australia.
Covering PhD tuition fees and medical insurance for 3.5 years valuing AUD 65,000.

03/2009 **School of Computer and Information Science Scholarship**, *University of South Australia, School of Computer and Information Science*, Adelaide, Australia.
Covering living expenses in Australia for 3.5 years valuing AUD 65,000.

Helped Writing

10/2010 **New Research Themes and Refocused Research Award**, *University of South Australia*, Adelaide, Australia.
Christian Sandor (Chief Investigator). Collaborative Visuo-Haptic Augmented Reality. Reference Number: 11/NTRR-04 valuing AUD 15,000.

Awards & Nominations

11/2012 **Best Paper Award Nomination**, *IEEE International Symposium on Mixed and Augmented Reality (ERA A, Acceptance Rate 24.8%)*, Atlanta, USA.
Out of 26 papers only five papers were nominated for the best paper award.

07/2011 **CIS Research Award**, *University of South Australia, School of Computer and Information Science*, Adelaide, Australia.
Awarded to the high achiever PhD students for their excellence in research in the year of 2010. Only 2 awards given this year.

10/2010 **First Runner-up in eChallenge Business Plan Competition**, *University of Adelaide, ECIC*, Adelaide, Australia.
Awarded AUD 7000 in cash and AUD 2500 in kind for presenting a business plan about an Augmented Reality product.

06/2010 **Best Poster Award**, *University of South Australia, School of Computer and Information Science*, Adelaide, Australia.
Awarded to the best poster presented on CIS Research Day 2010.

Professional

11/2015–Now **Consumer Experience Designer (Postdoctoral Fellow)**, *HIT Lab AU, University of Tasmania*, Launceston, Australia.

I am doing research on consumer experience design and designing user experiences for mobile phone-based applications for different groups of end-users in the livestock industry. This role involves performing detailed literature review, ethnographic studies, designing interactions and experiences for mobile apps, and collaborating with multiple distributed groups, project partners, and clients (industrial). It also involves publishing findings to leading journals and conferences.

03/2015–10/2015 **Postdoctoral Research Fellow**, *Worcester Polytechnic Institute*, Worcester, USA.

I performed interdisciplinary research on user experience in immersive multi-sensory virtual environments. Primary responsibilities included designing, executing, analyzing, and reporting of usability tests to measure human behavior in various immersive virtual environments; publishing and presenting in world-leading conferences and journals. I led user research projects for the Human Interaction in Virtual Environments (HIVE) lab.

- 06/2013–02/2015 **Senior Research Officer**, *James Cook University*, Cairns, Australia.
I performed research in health informatics and human-computer interaction for health promotion in rural indigenous communities. I am creating collaboration with both internal and external research groups. I lead the development of advanced research capacities for data analysis, curation, and management for the Center of Chronic Disease Prevention. I liaise with various data custodians of public health data. My responsibilities also include writing research articles, project plans, and grant applications.
- 07/2009–06/2013 **Seasonal Academic**, *University of South Australia, School of Information Technology and Mathematics*, Adelaide, Australia.
Courses I taught include Computer Techniques, Programming for Engineers, Problem Solving and Programming, Web and Database Development, Project Management for Software Engineering, Inter Enterprise Computing, Computer Graphics, and Database M.
- 07/2012–01/2013 **Data Analyst**, *The University of Adelaide*, Adelaide, Australia.
In this position, I have worked on multiple projects focused on evaluation and data analysis. The goal of those projects were to support evidence-based policy formation within the university. My responsibilities included analysis a large set of data and preparing reports for dissemination to the wider university community. The primary tools I use for statistical analyses are SPSS and Excel.
- 03/2007–02/2009 **Systems Analyst**, *Manthan Broadband Services Pvt. Ltd.*, Kolkata, India.
Maintaining the database and administrating automated billing and MIS using Oracle 10g, Crystal Reports, and Excel. Generating weekly, monthly, and quarterly reports to support performance evaluation, informed strategy making, and service upgrade.

Publications

Excellence in Research for Australia (ERA) ratings at the end of each conference publication indicate the quality of the conferences. *ERA A* is the highest rating for conferences and represents world's premium venues.

Google Scholar Statistics: h-index - 7; i10-index - 5; total citations - 154.

Thesis

- T.1 Perceptual Characteristics of Visualizations for Occluded Objects in Handheld Augmented Reality. **A. Dey**. PhD Thesis. University of South Australia 2013.

Book Chapter

- B.1 The Pursuit of "X-ray Vision" in Augmented Reality. M.A. Livingston, **A. Dey**, C. Sandor, B.H. Thomas. In Human Factors in Augmented Reality Environments. Chapter 4. Pages 67-107. Editors T. Huang, L. Alem, and M. Livingston. Springer USA, 2013.

Journals (Peer Reviewed)

- Under Preparation A Systematic Review of Usability Research in Augmented Reality Between 2000 and 2014. **A. Dey**, M. Billingham, E. Swan, R. Lindeman. Currently being prepared for submission at International Journal of Human-Computer Studies.
- Under Preparation Empirical Exploration of Secondary Cue Design Space in Multi-Sensory Virtual Environments. M. Feng, **A. Dey**, R. Lindeman. Currently being prepared for submission at IEEE Transactions on Visualization and Computer Graphics.

- Under Review When Chronic Conditions Become Emergencies - A Report From Far North Queensland. L. Harriss, F. Thompson, **A. Dey**, L. Mills, K. Watt, R. McDermott. Submitted at Australian & New Zealand Journal of Public Health, July 2015.
- J.3 SlidAR: A 3D Positioning Method for SLAM-Based Handheld Augmented Reality. J. Polvi, T. Taketomi, G. Yamamoto, **A. Dey**, C. Sandor, H. Kato. Accepted at Elsevier Computers & Graphics, October 2015.
- J.2 Lessons Learned: Evaluating Visualizations for Occluded Objects in Handheld Augmented Reality. **A. Dey**, C. Sandor. In International Journal of Human-Computer Studies, Vol. 72, No. 10–11, Pages 704–716, October 2014.
- J.1 Empirical Evaluation of Mapping Functions for Navigation in Virtual Reality using Phones with Integrated Sensors. A. Benzina, **A. Dey**, M. Tönnis, G. Klinker. In the International Journal of Innovative Computing, Information and Control (IJICIC), Vol.9 No.12, Pages 4693 - 4709, December 2013.

Conferences (Peer Reviewed)

- P.14 BurnAR: Involuntary Heat Sensations in Augmented Reality. P. Wier, C. Sandor, M. Swoboda, T. Nguyen, U. Eck, G. Reitmayr, **A. Dey**. In the Proceedings of IEEE Virtual Reality 2013. Pages 43-46. *ERA B*.
- P.13 Tablet versus Phone: Depth Perception in Handheld Augmented Reality. **A. Dey**, G. Jarvis, C. Sandor, G. Reitmayr. In the Proceedings of IEEE International Symposium on Mixed and Augmented Reality (ISMAR) 2012. Pages 187-196. **Best Paper Award Nominee**. *ERA A*.
- P.12 BurnAR: Feel the Heat. P. Wier, C. Sandor, M. Swoboda, T. Nguyen, U. Eck, G. Reitmayr, **A. Dey**. In the Proceedings of IEEE International Symposium on Mixed and Augmented Reality (ISMAR) 2012. Pages 331-332. *ERA A*.
- P.11 An Empiric Evaluation of Acknowledgment Methods for Optical See-Through Head Mounted Display Calibration. P. Maier, **A. Dey**, C.A.L. Waechter, C. Sandor, M. Tönnis, G. Klinker. In the Proceedings of Joint Virtual Reality Conference 2012. Pages 73-80.
- P.10 Empirical Evaluation of Mapping Functions for Navigation in Virtual Reality using Phones with Integrated Sensors. A. Benzina, **A. Dey**, M. Tönnis, G. Klinker. In the Proceedings of 10th Asia Pacific Conference on Computer Human Interaction 2012. Pages 149-158. *ERA C*.
- P.9 Head-turning Approach to Eye-tracking in Immersive Virtual Environments. A. Sherstyuk, **A. Dey**, C. Sandor. In the Proceedings of IEEE Virtual Reality 2012. Pages 137-138. *ERA B*.
- P.8 Dynamic Eye Convergence for Head-mounted Displays Improves User Performance in Virtual Environments. A. Sherstyuk, **A. Dey**, C. Sandor, A. State. In the Proceedings of ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games 2012. Pages 23-30. *ERA A*.
- P.7 An Evaluation of Augmented Reality X-Ray Vision for Outdoor Navigation. **A. Dey**, G. Jarvis, C. Sandor, A. K. Wibowo, V. Mattila. In the Proceedings of International Conference on Artificial Reality and Telexistence (ICAT) 2011. Pages 28-32. *ERA B*.

- P.6 An Empiric Evaluation of Acknowledgment Methods for Optical See-Through Head Mounted Display Calibration. P. Maier, **A. Dey**, C.A.L. Waechter, C. Sandor, M. Tönnis, G. Klinker. In the Proceedings of International Symposium on Mixed and Augmented Reality (ISMAR) 2011. Pages 267-268. *ERA A*.
- P.5 Evaluating Depth Perception of Photorealistic Mixed Reality Visualizations for Occluded Objects in Outdoor Environments. **A. Dey**, A. Cunningham, C. Sandor. In Proceedings of ACM Symposium of Virtual Reality Software and Technology, Hong Kong, November 2010. Pages 211-218. *ERA A*.
- P.4 An Augmented Reality X-Ray System Based on Visual Saliency. C. Sandor, A. Cunningham, **A. Dey**, V. Mattila. In Proceedings of International Symposium on Mixed and Augmented Reality (ISMAR), Seoul, South Korea, October 2010. Pages 27-36. *ERA A*.
- P.3 Egocentric Space-Distorting Visualizations for Rapid Environment Exploration in Mobile Mixed Reality. C. Sandor, A. Cunningham, U. Eck, D. Urquhart, G. Jarvis, **A. Dey**, S. Barbier, M. Marner, S. Rhee. In the Proceedings of IEEE Virtual Reality Conference 2010, Waltham, MA, USA. Pages 47-50. *ERA B*.
- P.2 Evaluating Depth Perception of Photorealistic Mixed Reality Visualizations for Occluded Objects in Outdoor Environments. **A. Dey**, A. Cunningham, C. Sandor. In the Proceedings of IEEE 3D User Interface Conference 2010, Waltham, MA, USA. Pages 127-128. *ERA B*.
- P.1 Egocentric Space-Distorting Visualizations for Rapid Environment Exploration in Mobile Mixed Reality. C. Sandor, A. Cunningham, U. Eck, D. Urquhart, G. Jarvis, **A. Dey**, S. Barbier, M. Marner, S. Rhee. In the Proceedings of International Symposium on Mixed and Augmented Reality (ISMAR), Orlando, FL, USA, 2009. Pages 211-212. *ERA A*.

Teaching

- 04/2013–06/2013 **Tutor**, *University of South Australia, School of Information Technology and Mathematics, Adelaide, Australia.*
Computer Techniques (COMP 1036).
- 03/2013–06/2013 **Tutor**, *University of South Australia, School of Information Technology and Mathematics, Adelaide, Australia.*
Programming for Engineers (COMP 1041).
- 03/2013–06/2013 **Tutor**, *University of South Australia, School of Information Technology and Mathematics, Adelaide, Australia.*
Problem Solving and Programming (COMP 1039).
- 02/2012 **Tutor**, *University of South Australia, School of Computer and Information Science, Adelaide, Australia.*
Web and Database Development (INFS 1019).
- 07/2010–11/2010 **Tutor**, *University of South Australia, School of Computer and Information Science, Adelaide, Australia.*
Project Management for Software Engineering (COMP 2008).
- 07/2010 **Lecturer (Casual)**, *University of South Australia, School of Computer and Information Science, Adelaide, Australia.*
Inter Enterprise Computing (INFS 3001).

- 07/2010 **Lecturer (Casual)**, *University of South Australia, School of Computer and Information Science, Adelaide, Australia.*
Computer Graphics (COMP 4015).
- 07/2009 **Tutor**, *University of South Australia, School of Computer and Information Science, Adelaide, Australia.*
Database M (INFS 5042).

Presentations

Guest Lecture

- 01/2011 **Evaluation of User Interfaces with Quantitative and Qualitative Methods**, at *Technische Universität München, Fakultät für Informatik, Munich, Germany.*
A talk on the evaluation methods for 2D graphical user interfaces to the students of the course of 2D Graphical User Interfaces for Desktop-based and Mobile Computer Applications.

Conference Presentations

- 03/2012 **Head-turning Approach to Eye-tracking in Immersive Virtual Environments**, at *IEEE Virtual Reality 2012, Orange County, USA.*
- 03/2012 **Dynamic Eye Convergence for Head-mounted Displays Improves User Performance in Virtual Environments**, at *ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games 2012, Orange County, USA.*
- 11/2011 **An Evaluation of Augmented Reality X-Ray Vision for Outdoor Navigation**, at *International Conference on Artificial Reality and Telexistence, Osaka, Japan.*
- 10/2011 **An Empiric Evaluation of Acknowledgment Methods for Optical See-Through Head Mounted Display Calibration.**, at *IEEE International Symposium on Mixed and Augmented Reality, Basel, Switzerland.*
- 02/2011 **Perceptual Characters of Photorealistic See-through Visualizations in Handheld Augmented Reality**, at *Winter Augmented Reality Meeting, Graz, Austria.*
- 11/2010 **Evaluating Depth Perception of Photorealistic Mixed Reality Visualizations for Occluded Objects in Outdoor Environments**, at *ACM Symposium of Virtual Reality Software and Technology, Hong Kong, China.*

Entrepreneurship Presentations

- 10/2010 **BrowsAR: A Mobile Augmented Reality Browser**, at *Australian Entrepreneurs' Challenge, Adelaide, Australia.*
Won first runner-up prize.

Experience Summary

General Research

Technical Writing: Authored multiple research papers, book chapters, grant applications, user study reports, and project proposals.

Public Speaking & Teaching: Presented multiple papers to reputed international conferences, business plans to stakeholders, research demos to public events, and lectures to university students.

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Collaboration & Team Work: Collaborated nationally and internationally with research partners and worked efficiently in a team on multiple research projects.

Ethics Protocol: Prepared human research ethics protocols for multiple projects following Australian Code of Ethical Conduct of Human Research and provided follow-up reports. Preserved research data, and maintained anonymity of subjects following the codes.

User Experience

User Interface: Designed and developed desktop and hand-held device-based 2D and 3D user interfaces in the domains of augmented reality (AR) and virtual reality (VR). Experienced in creating wireframes and storyboards.

Usability Research: 6+ years of experience in designing and executing usability studies and surveys to investigate human factors and user experience of 2D and 3D interfaces. So far executed 18 usability projects and results of these projects have been published in world-leading conferences and journals. I have detailed knowledge of quantitative and qualitative research methodologies and principles of experimental design. I am an expert in conducting interviews, surveys, workshops, and focus groups with end-users and synthesizing data to recommend product improvements.

Front-end Development: I have created front end interfaces for surveys and data entry using tools such as Python, VB, ASP, and PHP. Created designs and prototypes using Axure.

Consulting: I provide consultation on user interface design, experimental design, and data analysis.

Data Management

Data Analysis: I have excellent understanding of data linkage and statistical methods with extensive experience of using R, SPSS, and Statistica.

Database Development: I have experience of developing databases using Oracle 10g and MS SQL Server. For lightweight datasets I have created Access database. I am proficient in writing SQL queries to query databases and extract data.

Administration: I know the the legal and administrative requirements of data requests, collection, and storage. I have collaborated with various data custodians in Queensland Health to collect data from them.

Development & Managerial

Business Analysis: Problem identification and resolution, SWOT analysis.

Modeling: Creating, modifying, and texturing 3D models.

Database: Created and managed databases with appropriate access controls.

Report Generation: Maintained Subscriber Management System. Created and analyzed Quality of Services (QoS), Management Information System (MIS), Staff Census, and other regulatory reports.

Requirement Analysis: Interacted with clients and other stakeholders to identify requirements for software development.

Testing: Module tested deliverable software packages.

Leadership

Supervisor: Supervised a team of 15 members and monitored the work flow process.

Conference Organizer: I have been involved in organizational activities in multiple conferences.

Computer Skills

Programming Languages: C, Python, Java, Visual Basic, SQL, Latex.

Statistical Packages: SPSS, Statistica, R, Stata.

Database: MS Access, Oracle10g, Oracle 9i, PeopleSoft.

Graphical Packages: Blender, Photoshop, Axure.

Web Tools: HTML, CSS, Javascript, PHP, ASP, Wordpress, Drupal.

Reporting Packages: Crystal Reports, Excel.

Programming Experience: GNU/Linux, Mac OS X, Microsoft Windows, Android.

Client-Server: CVS, Subversion.

Memberships

01/2010–Now Institute of Electrical and Electronics Engineers (IEEE).

09/2010–Now Association for Computing Machinery (ACM).

05/2015–Now The Interaction Design Foundation (IDF).

Services

Organizing Committee

IEEE Symposium on 3D User Interfaces (2016): Poster Chair.

Australasian Conference on Artificial Life and Computational Intelligence (2015): International Program Committee Member.

Asia Pacific Conference on Computer Human Interaction (2013): E-Publications Chair and Program Committee Member.

IEEE International Symposium on Mixed and Augmented Reality (2013): Online Communications Chair.

IEEE International Symposium on Mixed and Augmented Reality (2012): Student Volunteer Co-Chair.

Paper Reviewer

ACM Symposium on Spatial User Interaction (SUI) (2015).

ACM Conference for Human Factors in Computing Systems (CHI) (2015).

The Australasian User Interface Conference (2015).

ACM Nordic Conference on Human-Computer Interaction (2014).

ACM Advances in Computer Entertainment Technology Conference (2014, 2015).

IEEE Transactions on Visualization and Computer Graphics (2014).

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Journal of Electrical Imaging (2013).

Journal of Research and Practice in Information Technology (2012).

IEEE Virtual Reality (2010).

IEEE International Symposium on Mixed and Augmented Reality (2010-2015).

Joint Virtual Reality Conference (2012).

Student Volunteer

IEEE International Symposium on Mixed and Augmented Reality (2011).

Languages

English, Bengali, Hindi: Strong bilingual proficiency.

Declaration

I hereby declare that the above written particulars are true to the best of my knowledge and belief.

Dr Arindam Dey

Place: Launceston, Australia

Date: November 22, 2015