

# Curriculum Vitae

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## PERSONAL INFORMATION

Name: **Cagatay Turkey**

Current Post: Research Fellow at the Visualization Group in University of Bergen  
Contact address: Department of Informatics, University of Bergen, 5020, Bergen, Norway  
E-mail: Cagatay.Turkay@ii.uib.no  
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Website: <http://www.ii.uib.no/vis/team/turkay>  
Born: 24 April 1983, Bursa, Turkey

## RESEARCH INTERESTS

Visualization, Visual analytics, Information Visualization, Human computer interaction, Statistics, Data mining

## ACADEMIC ACTIVITIES

Cagatay Turkey has published 13 peer-reviewed scientific articles since 2009. Six of these articles are published in journals and one is a book chapter. He published in prestigious journals such as *IEEE Transactions on Visualization and Computer Graphics* and *Computer Graphics Forum*. He has collaborated and wrote articles with scientists from different domains such as, bioinformatics, biomedicine, neuropsychology, data mining, and statistics. He serves as a reviewer for journals and conferences in visualization and computer graphics domain.

## ACADEMIC WORK EXPERIENCE

Mar. 2013 - May 2013	Visiting research fellow at the School of Engineering & Applied Sciences in Harvard University, Cambridge, MA, USA
Jan. 2010 - present	Researcher at University of Bergen, Bergen, Norway
Jan. 2010 - present	Lecturer & Teaching Assistant at University of Bergen, Bergen, Norway
Sept. 2007 - June 2009	Research Assistant at Sabanci University, Istanbul, Turkey

## EDUCATION

**University of Bergen**, Bergen, Norway

PhD., in Visualization, Jan. 2010 - present (expected Nov. 2013)

- Thesis Topic: Tight Integration of Statistics in Interactive Visual Analysis
- Advisor: Prof. Helwig Hauser (University of Bergen) and Prof. Peter Filzmoser (Vienna University of Technology)
- Area of Study: Interactive visual analysis

**Sabanci University**, Istanbul, Turkey

M.S., Computer Science & Engineering, Sept. 2007 - June 2009

- Thesis Topic: Information Theoretic Approaches for Computer Graphics Applications
- Advisor: Assoc. Professor Selim S. Balcişoy (Sabanci University)
- Area of Study: Computer Graphics

**Middle East Technical University**, Ankara, Turkey

B.S., Computer Engineering, Sept. 2001 - June 2006

**Journal articles**

- J. Parulek, C. Turkay, N. Reuter, I. Viola., “Visual Cavity Analysis in Molecular Simulations”, *BMC Bioinformatics*, in press, 2013
- Turkay, C., Lundervold, A., Lundervold, A. J., & Hauser, H., “Representative Factor Generation for the Interactive Visual Analysis of High-Dimensional Data”, *IEEE Transactions on Visualization and Computer Graphics 18(12) (InfoVis 2012)*, 2012
- Soltészova, V., Turkay, C., Price, M. C., & Viola, I., “A Perceptual-Statistics Shading Model”, *IEEE Transactions on Visualization and Computer Graphics 18(12) (SciVis 2012)*, 2012
- Turkay, C., Filzmoser, P., & Hauser, H., “Brushing Dimensions-A Dual Visual Analysis Model for High-Dimensional Data”, *IEEE Transactions on Visualization and Computer Graphics 17(12) (InfoVis 2011)*, 2011
- Turkay, C., Parulek, J., Reuter, N., & Hauser, H., “Interactive visual analysis of temporal cluster structures”, *Computer Graphics Forum 30(3) (EuroVis 2011)*, 2011
- C.Turkay, E.Koc, S.Balcisoy, “Integrating information theory in agent-based crowd simulation behavior models”, *The Computer Journal*, 54(11), 2011
- C.Turkay, E.Koc, S.Balcisoy, “An information theoretic approach to camera control for crowded scenes”, *The Visual Computer 25(5)*, 2009

**Book chapters**

- C.Turkay, E.Koc, S.Balcisoy, “An information theoretical approach to crowd simulation”, *Digital Urban Modeling and Simulation*, Springer Berlin Heidelberg, 2012

**Conference articles**

- C. Turkay, A. Lundervold, A.J.Lundervold & H. Hauser, “Hypothesis Generation by Interactive Visual Exploration of Heterogeneous Medical Data”, in press, *Lecture notes in Computer Science (HCI-KDD within SouthCHI 2013)*, 2013
- Parulek, J., Turkay, C., Reuter, N., & Viola, I., “Implicit surfaces for interactive graph based cavity analysis of molecular simulations”, *IEEE Symposium on Biological Data Visualization (BioVis 2012)*, 2012
- Turkay, C., Parulek, J., & Hauser, H., “Dual analysis of DNA microarrays”, *Proceedings of the 12th International Conference on Knowledge Management and Knowledge Technologies (I-KNOW 2012)*, 2012
- Turkay, C., Parulek, J., Reuter, N., & Hauser, H., “Integrating cluster formation and cluster evaluation in interactive visual analysis”, *Proceedings of the Spring Conference on Computer Graphics*, 2011
- C.Turkay, E.Koc, S.Balcisoy, “An Information Theory Based Behavioral Model for Agent-Based Crowd Simulations”, *Computer and Information Science: Proc. 25th Int. Symp. Computer and Information Sciences*, 2010
- A.Cayci, S.Sumengen, C.Turkay, S.Balcisoy, Y.Saygin, “Temporal Dynamics of User Interests in Web Search Queries”, *Proceedings of 2009 IEEE International Symposium on Mining and Web MAW09*, 2009

**Posters**

- Turkay, C., Parulek, J., & Hauser, H., “Dual Analysis of High-Dimensional Biological Data”, *VIZBI 2013*, Boston, USA, 2013
- Turkay, C., Parulek, J., & Hauser, H., “Interactive Visual Analysis of Biological Data”, *VIZBI 2012*, Heidelberg, Germany, 2012

- Turkay, C., Parulek, J., Reuter, N., & Hauser, H., “Interactive Visual Analysis of Molecular Dynamics Simulations of Lipid Bilayers”, MedViz Conference, Bergen, Norway, 2011

### Work in progress

- C.Turkay, & H.Hauser, “Optimizing Processes in Visual Analytics to Meet the Three Human Time Constants”, submitted to *Computers and Graphics*, 2013
- C.Turkay, P.Angelelli, P.Filzmoser & H.Hauser, “Outlier Dimensions – Outlier Aware Analysis of High-dimensional Data”, submitted to *IEEE Transactions on Visualization and Computer Graphics*, 2013
- P. Angelelli, S. Oeltze, J. Haasz, C. Turkay, E. Hodneland, A. Lundervold, A. J. Lundervold, B. Preim & H. Hauser, “Interactive Visual Analysis of Heterogeneous Cohort Study Data”, submitted to *IEEE Computer Graphics and Applications*, 2013
- A.Birkeland, C.Turkay & I.Viola, “Perceptually Uniform Motion Space”, submitted to *IEEE Transactions on Visualization and Computer Graphics*, 2013

### TALKS

- Invited talk at the Department of Psychology, Harvard University, Cambridge, USA, April 2013  
*Hypothesis Generation Through Interactive Visual Data Analysis*
- Invited talk at the GVI Group, SEAS, Harvard University, Cambridge, USA, April 2013  
*Dual Analysis Methodology for the interactive and visual analysis of high dimensional data*
- Invited talk at Christian Michelsen Research, Bergen, Norway, March 2013  
*Brushing Dimensions – A new perspective on high dimensional data analysis*
- Talk at ICT Research School, Bergen, Norway, May 2011  
*Interactive Visual Analysis of Clusters*
- Talk at Bioinformatics Forum for Young Scientists, Ullensvang, Norway, March 2011  
*Interactive Visual Analysis of Molecular Dynamics Simulations of Lipid Bilayers*
- Talk at ICT Research School, Bergen, Norway, May 2010  
*Interactive Visual Analysis Techniques*

### PROJECT ACQUISITION ACTIVITIES

- Co-authored *Stream Analysis: Interactive Visual Analysis of Streaming Data*, grant proposal within FRINATEK scheme from Norwegian Research Council, 2013
- Co-authored *Information Theory based Social Network Visualization Techniques*, funded by Turkish National Science Foundation, 2009
- Co-authored *Producing a Motion Capture System Using Standard Video Cameras*, funded by The Scientific And Technological Research Council Of Turkey, 2007

### ACADEMIC SERVICES

#### Reviewer

- IEEE Transactions on Visualization and Computer Graphics, 2011, 2012, 2013
- VIS conferences (InfoVis, SciVis and VAST), 2010, 2011, 2012, 2013
- EuroVis (Computer Graphics Forum), 2012, 2013
- PacificVis, 2012, 2013
- The Visual Computer, 2012
- Computer Graphics International, 2008, 2011, 2012
- Advanced Visual Interfaces, 2010

#### Conference Organization

- Local organization responsible, EuroVA 2011, Bergen, Norway
- Organization assistance, EuroVis 2011, Bergen, Norway

## TEACHING

### Lecturer

- Seminar in Visualization (INF358), Fall 2012, University of Bergen

### Teaching Assistant

- Computer Graphics (INF251), Spring 2012, University of Bergen
- Algorithms and Data Structures (INF102), Fall 2011, University of Bergen
- Discrete Structures (MNF130), Spring 2011, University of Bergen
- Seminar in Visualization (INF358), Fall 2010, University of Bergen
- Introduction to Computing (CS201), Spring 2009, Sabanci University
- Computer Graphics (CS405), Fall 2008, Sabanci University

### Student supervision

- Project supervision, Andreas Lind, Multiresolution Analysis for Visual Analysis of Gene Expression Data, Spring 2011, University of Bergen
- Master Thesis, Prabu Vekataraman, A Unified Visualization Workbench for Integrative Bioinformatics Research, Fall 2010, University of Bergen
- Project supervision, Jonas Waage, Optical Tracking on the VizWall at Hyteknologisenteret, Fall 2010, University of Bergen
- Project supervision, Emre Koc, Crowd Simulation Applications, Spring 2009, Sabanci University
- Project supervision, Kamer Ali Yuksel, Crowd Simulation Applications, Spring 2009, Sabanci University

## FELLOWSHIPS & AWARDS

- UIB Meltzer Foundation project grant, 2012
- Second Best Paper Award at *Spring Conference on Computer Graphics*, 2011
- Sabanci University Graduate Student Scholarship, 2007 - 2009

## COMMERCIAL WORK EXPERIENCE

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|-------------------------|--------------------------------------------------------------------------------------------|
| Sept. 2006 - Sept. 2007 | R&D Engineer at Yogurt Technologies, Istanbul, Turkey.                                     |
| Jul. 2006 - Sept. 2006  | Software Support Specialist at IBM Turkey, Istanbul, Turkey.                               |
| Dec. 2005 - May 2006    | R&D Engineer at Siemens Business Services, Sebit - Create Game Department, Ankara, Turkey. |

## TECHNICAL SKILLS

- Programming Languages: C, C++, C#, Python, Java, Lisp, Prolog
- Visualization Libraries: D3, Processing, Prefuse (Flare)
- Computer graphics related libraries: GPU programming (GLSL), OpenGL, DirectX, CUDA
- Data analysis Libraries: R Statistical Computing, Weka, Matlab
- Image processing related libraries: OpenCV, Matlab