

## Curriculum Vitae - short version

<b>Niels Jørgen Christensen</b>	Associate Professor, Ph.D.
Place of Work	Technical University of Denmark, Informatics & Mathematical Modelling (IMM = DTU.Informatics) Building 321, 2800 Lyngby Phone 4525 3366 . E-mail <a href="mailto:njc@imm.dtu.dk">njc@imm.dtu.dk</a>
Home Address	Ole Olsen Alle 11 DK-2900 Hellerup 3962 4644
Marital status	Married – two children born in 1995 and 2000
Occupation	
1978	M.Sc.Chemical Engineering (Polymer materials)
1979	Military service
1979-80	Teacher DTU, Descriptive Geometry 1 and 2 IFT, DTH
1980-83	Ph.D. student Department of Chemical Engineering, DTU Polymer materials.
1984-88	Assistant Professor, Department of Graphical Communication, DTH
1988-00	Associate Professor, Department of Graphical Communication, DTU (from 1996 a section of the Department of Planning)
2000-	Associate Professor, IMM, Informatics & Mathematical Modelling, DTU (DTU-Informatics)
Research Area	Computer Graphics and Virtual Reality: Visualization and Geometric Modelling and the application in areas such as Scientific Visualization, Computer Aided Design, Computer Animation, 3D-Multimedia, 3D-Games, and 3D-Medical area. Currently most focus on light-material interaction and Appearance modelling Some of the earlier work was presented in a comprehensive form at Siggraph2000: <a href="http://www.siggraph.org/s2000/conference/courses/crs8.html">http://www.siggraph.org/s2000/conference/courses/crs8.html</a>
Papers	See Orbit or list in appendix
Ph.d projects	Ph.D. Advisor: 11 finished, 2 running Ph.D. projects
Reviewer	Several journals and proceeding: ACM Transaction on Graphics, IEEE Transactions on Visualization and Computer Graphics, Visual Computer, WSCG, ACM Siggraph, Eurographics, EGWR, ACM Interactive 3D Graphics, SCIA
Cooperation	Henrik Wann Jensen, UCSD (visiting professor 2005-2006) Ph.d. committee members:

Karol Myzkowski, Max Planck Institut, Informatik, Saarbrücken,  
Min Shen, Swansea University,  
Alan Chalmers, University of Bristol  
Tapio Takala, Helsinki University of Technology  
Lars Kjelldahl, Royal Institute of Technology, Sweden  
Milos Sramek, Austrian Academi of Sciences (OAW) ,  
Visualization, Vienna  
Mikael Jern, Linköping University

Assessment Assoc.Professor	University of California, San Diego
Committee assistant professor	Royal Institute of Technology, Sweden, University of Copenhagen (DIKU)
Committee ph.d . defense	University of Copenhagen (DIKU), University of Århus (DAIMI), University of Southern Denmark (SDU)
Conference participation	ACM Siggraph (19), Eurographics (7), EGWR (2), ACM/Eurographics SCA (2), APGV (2), Symp. Interactive Ray Tracing (1), CA (1)
Memberships	ACM Siggraph, ACM SIGCHI, IEEE Computer Society, Eurographics, IEEE WG 5.10
Teaching	
Current Courses	02501 Image Analysis, Vision & Computer Graphics (CG-part) 02561 Computer Graphics 02562 Rendering - Introduction 02565 Computer Animation & Modelling 02566 Rendering (earlier name Appearance Modelling) 02569 Light & Material
Advisor	M.Sc. Advisor: more than 40 finished M.Sc. projects
External Examiner	University of Copenhagen (DIKU), University of Århus (DAIMI), University of Aalborg (Ålborg and Ballerup) IT-University (Copenhagen), University of Southern Denmark

## General Description

Niels Jørgen Christensen (NJC) works with computer graphics and applications of computer graphics for the engineering and medical area as well as for the game, media, and design world. He has great experience with graphics systems – both from an application and a system point of view.

Niels Jørgen Christensen is an associate professor in computer graphics at Informatics and Mathematical Modeling (DTU.Informatics, IMM). He holds a M.Sc. degree in chemical engineering and a Ph.D. degree in the field of polymer materials from the Technical University of Denmark (DTU).

NJC has been employed at DTU throughout his professional carrier, first at the Department of Planning (Graphical Communication) and since 2000 at IMM. During the years, he has been developing a series of courses in computer graphics and applications hereof. They range from application oriented courses in Virtual Reality over CAD, Scientific Visualization and Computer Animation & Modeling to more development and research oriented courses such as algorithm development and design of graphics systems, in particular with respect to photorealistic and real time visualization and appearance modeling.

The research is concentrated around methods for fast and high quality rendering, for instance for using physical based material parameters as input to rendering algorithms and for the prediction of complicated optical properties of materials based on knowledge of the properties of the components.

Niels Jørgen Christensen is a member of several scientific societies, among those ACM SIGGRAPH, ACM SIGCHI, ACM SIGMM, IEEE Computer Society, and Eurographics.

[Christensen, Niels Jørgen](#); [Gjøl, Mark](#); [Larsen, Bent Dalgaard](#)

**Final Gathering Using Ray Differentials**

Presented at: WSCG 2008. Plzen, Czech Republic, 2008

In: Proceedings of WSCG 2008 : Communication Papers Proceedings, p. 41-46 , 2008

Type: Conference paper published in book/proceeding

Resolvers: [DTU link](#)

[Frisvad, Jeppe Revall](#); [Christensen, Niels Jørgen](#); [Falster, Peter](#)

**The Aristotelian Rainbow: From Philosophy to Computer Graphics**

Presented at: GRAPHITE. Perth, Western Australia, 2007

In: Proceedings of GRAPHITE 2007 : 5th International Conference on Computer Graphics and Interactive Techniques in Australasia and Southern Asia, p. 119-128+311 ACM, 2007

Type: Conference paper published in book/proceeding

Resolvers: [DTU link](#)

**File attachments**

[imm5480.pdf](#) (Post-print: access to All)

[Frisvad, Jeppe Revall](#); [Christensen, Niels Jørgen](#); [Jensen, Henrik Wann](#)

**Computing the scattering properties of participating media using Lorenz-Mie theory**

Presented at: ACM SIGGRAPH. San Diego, California, 2007

In: ACM Transactions on Graphics, vol: 26(3), p. Article 60 (2007). ACM

Type: Conference paper published in journal

Resolvers: [DTU link](#) [doi](#) 10.1145/1276377.1276452

**File attachments**

[paper.pdf](#) (Post-print: access to All)

[Lai, Gorm](#); [Christensen, Niels Jørgen](#)

**A Compression Method for Spectral Photon Mapping**

Presented at: WSCG 2007. Plzen, Czech Republic, 2007

In: Proceedings of WSCG 2007 : Short Communication Papers Proceedings, p. 95-102 , 2007

Type: Conference paper published in book/proceeding

Resolvers: [DTU link](#)

[Jensen, Peter Dahl Ejby](#); [Francis, Nicholas](#); [Larsen, Bent Dalgaard](#); [Christensen, Niels Jørgen](#)

**Interactive Shader Development**

Presented at: The 2007 ACM Siggraph Symposium on Video Games. San Diego, USA, 2007

In: Proceedings of the 2007 ACM Siggraph Symposium on Video Games : Sandbox 07 , 2007

Type: Conference paper published in book/proceeding

Resolvers: [DTU link](#)

[Jakobsen, Bjarke](#); [Bærentzen, Jakob Andreas](#); [Christensen, Niels Jørgen](#)

**Variational Volumetric Surface Reconstruction from Points**

Presented at: IEEE/EG International Symposium on Volume Graphics, 2007

In: IEEE/EG International Symposium on Volume Graphics , 2007

Type: Conference paper published in book/proceeding

Resolvers: [DTU link](#)

[Frisvad, Jeppe Revall](#); [Falster, Peter](#); [Møller, Gert L.](#); [Christensen, Niels Jørgen](#)

**Abductive Inference using Array-Based Logic - Informatics and Mathematical Modelling**, Technical University of Denmark, 2006

In: IMM-Technical report-2006-06 (2006).

Type: Report

Resolvers: [DTU link](#)

**File attachments**

[imm4648.pdf](#) (Publisher version: access to All)

[Egholm, Janus](#); [Christensen, Niels Jørgen](#)

**Rendering Compact Discs and Other Diffractive Surfaces illuminated by Linear light sources**

Presented at: GRAPHITE 2006. Kuala Lumpur, Malaysia, 2006

In: Proceedings of GRAPHITE 2006 ; 2006, p. 329-332 ACM, 2006

Type: Conference paper published in book/proceeding

Resolvers: [DTU link](#)

[Bærentzen, Jakob Andreas](#); [Nielsen, Steen Lund](#); [Gjøl, Mikkel](#); [Larsen, Bent Dalgaard](#); [Christensen, Niels Jørgen](#)

**Single-pass Wireframe Rendering**

Presented at: Siggraph Sketches, 2006

Type: Conference contribution, Poster presentation

**File attachments**

[imm4884.pdf](#) (Publisher version: access to All)

[Frisvad, Jeppe Revall](#); [Christensen, Niels Jørgen](#); [Falster, Peter](#)

**Efficient light scattering through thin semi-transparent objects**

Presented at: GRAPHITE 2005. Dunedin, New Zealand, 2005

In: Proceedings of GRAPHITE 2005 : 3rd International Conference on Computer Graphics and Interactive Techniques in Australasia and Southeast Asia, p. 135-138 (2005)., 2005-New York : The Association for Computing Machinery, Inc. (ACM), 2005

Type: Conference paper published in book/proceeding

Resolvers: [DTU link](#)

**File attachments**

[imm4039.pdf](#) (Post-print: access to All)

[Frisvad, Jeppe Revall](#); [Falster, Peter](#); [Møller, Gert Lykke](#); [Christensen, Niels Jørgen](#)

**Knowledge exchange between agents in real-time environments**

Presented at: Computer Animation and Social Agents. Hong Kong, 2005

In: Proceedings of the International Conference on Computer Animation and Social Agents (CASA 2005), p. 127-132 (2005)., 2005 The Hong Kong Polytechnic University, 2005

Type: Conference paper published in book/proceeding

Resolvers: [DTU link](#)

**File attachments**

[imm3896.pdf](#) (Publisher version: access to All)

[Frisvad, Jeppe Revall](#); [Christensen, Niels Jørgen](#); [Falster, Peter](#)

**Lighting effects for mobile games**

Presented at: SIGRAD'05. Lund, Sweden, 2005

In: Proceedings of SIGRAD'05 : The Annual SIGRAD Conference, Special Theme: Mobile Graphics, p. 13-18 (2005)., 2005 Linköping University Electronic Press, 2005

Type: Conference paper published in book/proceeding

Resolvers: [DTU link](#)

**File attachments**

[imm4046.pdf](#) (Post-print: access to All)

[Frisvad, Jeppe Revall](#); [Christensen, Niels Jørgen](#); [Falster, Peter](#)

**Scene independent real-time indirect illumination**

Presented at: Proceedings of Computer Graphics International, 2005

In: Proceedings of Computer Graphics International 2005, p. 185-190+275 (2005)., 2005 IEEE Computer Society, 2005

Type: Conference paper published in book/proceeding

Resolvers: [DTU link](#) [doi: 10.1109/CGI.2005.1500412](#)

**File attachments**

[imm3631.pdf](#) (Post-print: access to All)

[Jacobsen, Bjarke](#); [Christensen, Niels Jørgen](#); [Larsen, Bent Dalgaard](#); [Pedersen, Kim S.](#)

**Boundary Correct Real-Time Soft Shadows**

In: Computer Graphics International (2004)., 2004 IEEE Computer Society Press, 2004

Type: Conference paper published in book/proceeding

Resolvers: [DTU link](#)

[Larsen, Bent Dalgaard](#); [Christensen, Niels Jørgen](#)

**Simulating Photon Mapping for Real-time Applications**

In: Eurographics Symposium on Rendering (2004)., 2004 , 2004

Type: Conference paper published in book/proceeding

Resolvers: [DTU link](#)

**File attachments**

[imm3192.pdf](#) (: access to )

[imm3192.zip](#) (: access to )

[Bærentzen, Jakob Andreas](#); [Christensen, Niels Jørgen](#)

**Hardware Accelerated Point Rendering of Isosurfaces**

In: Journal of WSCG, vol: 11(1), p. 41-48 (2003).

Type: Journal article

Resolvers: [DTU link](#)

**File attachments**

[imm1786.pdf](#) (: access to )

[Larsen, Bent Dalgaard](#); [Christensen, Niels Jørgen](#)

**Real-time Terrain Rendering using Smooth Hardware Optimized Level of Detail**

In: Journal of WSCG, vol: 11(2), p. 282-9 (2003).

Type: Journal article

Resolvers: [DTU link](#)

**File attachments**

[imm1425.pdf](#) (: access to )

[Larsen, Bent Dalgaard](#); [Christensen, Niels Jørgen](#)

**Optimizing Photon Mapping Using Multiple Photon Maps for Irradiance Estimates**

In: WSCG POSTER proceedings

Type: Conference contribution, Poster presentation

Resolvers: [DTU link](#)

**File attachments**

[imm1426.pdf](#) (Publisher version: access to All)

[Bærentzen, Jakob Andreas](#); [Christensen, Niels Jørgen](#)

**Hardware Accelerated Point Rendering of Isosurfaces**

Presented at: Winter School of Computer Graphics. University of West Bohemia, Czech Republic, 2003

In: Journal of WSCG, vol: 11(1), p. 41-48 (2003). University of West Bohemia

Type: Conference paper published in journal

Resolvers: [DTU link](#)

[Bærentzen, Jakob Andreas](#); [Christensen, Niels Jørgen](#)

**Interactive Modelling of Shapes Using the Level-Set Method**

In: International Journal of Shape Modelling, vol: 8(2), p. 79-97 (2002).

Type: Journal article

Resolvers: [DTU link](#)

**File attachments**

[imm1785.pdf](#) (: access to )

[Nielsen, Kasper Høy](#); [Christensen, Niels Jørgen](#)

**Real-time recursive specular reflections on planar surfaces using graphics hardware**

In: Journal of WSCG, vol: 10(3), p. 91-98 (2002).

Type: Journal article

Resolvers: [DTU link](#)

[Nielsen, Kasper Høy](#); [Christensen, Niels Jørgen](#)

**Real-time dynamic radiosity relighting of virtual environments**

In: Journal of WSCG, vol: 10(2), p. 325-331 (2002).

Type: Journal article

Resolvers: [DTU link](#)

[Bærentzen, Jakob Andreas](#); [Christensen, Niels Jørgen](#)

**Interactive Modelling of Shapes Using the Level-Set Method**

In: International Journal of Shape Modelling, vol: 8(2), p. 79-97 (2002). World Scientific Publishing Company, 2002 [bibtex]

Type: Journal article

Resolvers: [DTU link](#)

[Larsen, Bent Dalgaard](#); [Bærentzen, Jakob Andreas](#); [Christensen, Niels Jørgen](#)

**Using Cellular Phones to Interact with Virtual Environments**

Presented at: SIGGRAPH, 2002

In: ACM Siggraph 2002, Conference Abstracts and Applications , 2002

Type: Conference contribution, Poster presentation

Resolvers: [DTU link](#)

**File attachments**

[imm1424.pdf](#) (Publisher version: access to All)

[Bærentzen, Jakob Andreas](#); [Christensen, Niels Jørgen](#)

**Volume Sculpting Using the Level-Set Method**

Presented at: International Conference on Shape Modelling and Applications (SMI), 2002

In: International Conference on Shape Modelling and Applications (SMI) (2002)., 2002 , 2002

Type: Conference paper published in book/proceeding

Resolvers: [DTU link](#)

**File attachments**

[imm704.pdf](#) (Publisher version: access to Campus)

[Bærentzen, Jakob Andreas](#); [Christensen, Niels Jørgen](#); [Müller, Klaus](#)

**A Technique for Volumetric CSG Based on Morphology**

In: International Workshop on Volume Graphics 2001, p. 71-79 (2001)., 2001 State University of New York at Stony Brook, 2001

Type: Conference paper published in book/proceeding

Resolvers: [DTU link](#)

**File attachments**

[imm702.pdf](#) (: access to )

[Nielsen, Kasper Høj](#); [Christensen, Niels Jørgen](#)

**Fast texture based form factor calculations for radiosity using graphics hardware**

In: Journal of graphics tools, vol: 6(4), p. 1-12 (2001).

Type: Journal article

Resolvers: [DTU link](#)

[Bærentzen, Jakob Andreas](#); [Christensen, Niels Jørgen](#)

**A Technique for Volumetric CSG Based on Morphology**

Presented at: International Workshop on Volume Graphics. Stony Brook, New York, USA, 2001

In: Proceedings of the International Workshop on Volume Graphics 2001, p. 71-79

Type: Conference paper published in book/proceeding

Resolvers: [DTU link](#)

[Jensen, Henrik Wann](#); [Christensen, Niels Jørgen](#)

**Global illumination using photon maps - Department of Graphical Communication, 2000**

Type: Report

[Jensen, Henrik Wann](#); [Christensen, Niels Jørgen](#)

**A practical guide to global illumination using photon maps**

Presented at: ACM Siggraph 2000, Course note 8, 2000

In: ACM Siggraph 2000 , 2000

Type: Conference paper published in book/proceeding

Resolvers: [DTU !\[\]\(34b4f260a8587d2e97eeaee361cc357b\_img.jpg\) link](#)

[Bærentzen, Jakob Andreas](#); [Sramek, Milos](#); [Christensen, Niels Jørgen](#)

**A Morphological Approach to the Voxelization of Solids**

Presented at: Winter School of Computer Graphics (WSCG) 2000, 2000

In: Winter School of Computer Graphics (WSCG) 2000, vol: 1, p. 44-51 (2000)., 2000 University of West Bohemia, Plzen, Czech Republic, 2000

Type: Conference paper published in book/proceeding

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**File attachments**

[imm711.pdf](#) (Publisher version: access to All)