

Dr. Hubert P. H. Shum

Contact

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Research Interests

Character Animations, Machine Learning, Physical Simulations, Human Computer Interaction, Serious Games, Motion Analysis, Musculoskeletal Simulation

Teaching Interests

Computer Animation, Computer Graphics, Computer Games Design, Object-oriented Programming

Education

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| 2006-2010 | Ph. D. in Computer Science,
University of Edinburgh, Edinburgh, United Kingdom
- Thesis title: Simulating Interactions Among Multiple Characters |
| 2004-2005 | M. Sc. In Information Technology,
City University of Hong Kong, Hong Kong, China
- Distinction, GPA 3.97 |
| 2000-2004 | B. Eng. In Computer Engineering,
City University of Hong Kong, Hong Kong, China
- Best Final Year Project Award in 2004
- Dean's List in 2004 |

Experience

- 2011-Present Lecturer (Assistant Professor)
University of Worcester, United Kingdom
- Researching on motion analysis and publishing research papers
 - Conducting lecturers and tutorial sessions for the computer games design modules
 - Securing research funding and supervising Ph. D. students
- 2010-2011 Postdoctoral Researcher
RIKEN, Japan
- Researching on musculoskeletal simulation and human motion synthesis
 - Publishing research papers in respectable conferences and journals
- 2006-2009 Tutor
University of Edinburgh, Edinburgh, United Kingdom
- Holding tutorial classes in computer graphics and computer vision
 - Occasionally teaching in, and preparing materials for, regular lectures
- 2004-2006 Research Assistant
City University of Hong Kong, Hong Kong
- Conducting research, and publishing research papers, on computer graphics and computer vision
 - Holding tutorial classes in computer game design
- 2003-2004 Engineering Trainee
Dongguan Nokia Mobile Phones Company Limited, China
- Designing and implementing database software to manage production

Research Students Supervision

- 2011-Present Joseph Henry, Ph. D. in Computer Science
University of Edinburgh
- Research Topic: Simulating Virtual Crowd with Machine Learning Approaches
- 2011-Present Trevor Tomesh. Ph. D. in Computer Science
University of Worcester
- Research Topic: Virtual Reality for Enhancing Teaching and Learning

Awards

Outstanding Teaching Performance in 2011

- Received from the University of Worcester for leading the module Advanced Object-oriented Programming
- 92% positive responses from students in the module evaluation

Initiating Knowledge Transfer Fund in 2009: £15000

- Received from the Edinburgh Research and Innovation
- Migrating the Interaction Patches project to Autodesk Maya for industrial applications

Best Paper Award in the 2008 Annual Conference on Computer Animation and Social Agents

Ph. D scholarship in 2006: £37000

- Received from the School of Informatics, University of Edinburgh

Patents

Interaction Patches for Multi-Character Animation (Patent Pending)

Speaking Languages

English – Fluent

Mandarin – Fluent

Cantonese – Fluent

Japanese – Intermediate

Skills

Strong programming background and extended experience on C++, C#, C, XNA Framework, OpenGL, DirectX, Microsoft .Net Framework, Maya API and SQL Server

Broad experience in different programming language (Visual Basic, ASP, ASP .NET, HTML, Java Script, Action Script, Pascal, Assembly), 3D graphics software (Maya, Motion Builder), video editing software (Adobe Premiere), web design software (Flash, Dreamweaver, Fireworks) and operation system management (Windows Server)

References

Dr. Taku Komura

Reader (Professor)

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Dr. Shuntaro Yamazaki

Researcher

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Publications

(For video demonstrations, please visit <http://info.hubertshum.com>)

Refereed Journal Papers

1. Hubert P. H. Shum, Taku Komura and Shu Takagi
Fast Accelerometer-Based Motion Recognition with a Dual Buffer Framework
The 2011 The International Journal of Virtual Reality (IJVR)
- * 2. Hubert P. H. Shum, Taku Komura and Shuntaro Yamazaki
Simulating Multiple Character Interactions with Collaborative and Adversarial Goals
The 2010 IEEE Transactions on Visualization and Computer Graphics (TVCG)
3. Hubert P. H. Shum, Taku Komura and Pranjul Yadav
Angular Momentum Guided Motion Concatenation
Proceedings of the 2009 Computer Animation and Social Agents (CASA 2009) / Journal of Computer Animation and Virtual World
- * 4. Hubert P. H. Shum, Taku Komura, Masashi Shiraish and Shuntaro Yamazaki
Interaction Patches for Multi-Character Animation
Proceedings of the 2008 ACM SIGGRAPH Asia (SIGGRAPH Asia 2008) / ACM Transactions on Graphics
5. Jeff K. T. Tang, Howard Leung, Taku Komura and Hubert P. H. Shum
Emulating Human Perception of Motion Similarity
Proceedings of the 2008 Computer Animation and Social Agents (CASA 2008) / Journal of Computer Animation and Virtual World

Refereed Conference Papers

1. Hubert P. H. Shum, Taku Komura, Takaaki Shiratori and Shu Takagi
Physically-based Character Control in Low Dimensional Space
The Third International Conference on Motion in Games (MIG 2010) / The 2010 Lecture Notes In Computer Science: Motion In Games (MIG 2010)
2. Hubert P. H. Shum, Taku Komura and Shuntaro Yamazaki
Simulating Interactions of Avatars in High Dimensional State Space
Proceedings of the 2008 Symposium on Interactive 3D Graphics and Games (I3D 2008)
3. Taku Komura, Hubert P. H. Shum and Edmond S. L. Ho
Simulating Interactions of Characters
The First International Conference on Motion in Games (MIG 2008) / The 2008 Lecture Notes In Computer Science: Motion In Games
4. Jeff K. T. Tang, Howard Leung, Taku Komura and Hubert P. H. Shum
Finding Repetitive Patterns in 3D Human Motion Captured Data
Proceedings of the 2008 International Conference on Ubiquitous Information Management and Communication (ICUIMC 2008)

5. Hubert P. H. Shum, Taku Komura and Shuntaro Yamazaki
Simulating Competitive Interactions using Singly Captured Motions
Proceedings of the 2007 ACM Symposium on Virtual Reality Software and Technology (VRST 2007)
6. Hubert P. H. Shum and Taku Komura
Tracking the Translational and Rotational Movement of the Ball Using High Speed Camera Movies
Proceedings of the 2005 IEEE International Conference on Image Processing (ICIP 2005)
7. Hubert P. H. Shum and Taku Komura
A Spatiotemporal Approach to Extract the 3D Trajectory of the Baseball from a Single View Video Sequence
Proceedings of the 2004 IEEE International Conference on Multimedia and Expo (ICME 2004)

Thesis

1. Hubert P. H. Shum
Simulating Interactions Among Multiple Characters
PhD Thesis, The University of Edinburgh, 2010

* indicates major publications