Dr. Piotr Bartłomiej Dubla

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SUMMARY

- **Commercial:**
  - *Game development:* Over five years experience working as a senior graphics programmer on franchises such as Grand Theft Auto 5 and Max Payne 3 on both previous and current console generations along with PC.
  - *Web development:* Five years of full-time commercial experience, two years part-time experience. Number of different positions held (Project Leader, Team Leader and Developer) on a variety of projects. Projects differed vastly in scope where the user-base ranged from 2 to 20,000+ users.

- **Academic:**
  - PhD in interactive global illumination in which a number of novel algorithms have been developed.
  - Development of a scalable and modular rendering system utilised by a number of colleagues in the lab.
  - Interests in high-fidelity rendering, photo-realistic image synthesis, real-time rendering and interactive global illumination and ray tracing.
  - Degrees: PhD in Engineering and BSc Hons in Computer Science.

- **Personal:**
  - Programming since age 11 with a focus on computer graphics and rendering.
  - General interest in computers, programming and game/graphics developmentp from an early age. Interests extend to fractals, virtual/augmented reality, non photorealistic rendering and data visualisation.

EMPLOYMENT HISTORY

Rockstar North   Edinburgh, United Kingdom
Senior Graphics Programmer   June 2012 - Present
Graphics Programmer   August 2009 - June 2012

- Currently focused on the GTA franchise while contributing to a number of other projects at the same time.
- Specifics of responsibilties and contributions avaliable on request.
- Platforms: PS3, Xbox 360, PS4, Xbox One, PC.
- Completed projects: GTA V and Max Payne 3.

The Digital Laboratory, University Of Warwick   Warwickshire, United Kingdom
PhD Student (Full-time)   Jul. 2006 - August 2009

- Planned and implemented an interactive global illumination framework for the purpose of testing newly developed algorithms and comparing these to existing ones. (PhD thesis)
- Framework consisted of a modular renderer that is currently employed by several members of the research group.
- Renderer is fully multi-threaded and runs in Windows, OSX and Linux in both 32bit and 64bit environments.
- Rendering can be executed on a single dedicated machine as well as on a commodity cluster using MPI.
- A number of offline and interactive algorithms implemented, including:
  - Path tracing, Instant Global Illumination, Instant Radiosity, Progressive Photon Mapping

Clickthinking   Cape Town, South Africa
Senior Developer (Flexi-time)   Aug. 2001 - Jun. 2006

- High-end web development company developing full web strategies for a number of local and international clients.
- Functioned as Project Leader, Client Liaison, Team Leader and Developer on a number of projects.
- Provided fully custom and integrated front-end and back-end solutions in a variety of languages and operating systems.
- Developed a customisable and modular back-end and front-end system that was utilised on multiple projects.
- Responsible for guiding the technical direction taken when choosing new technologies.
- Developed sites from 5 to 3000+ pages utilised by 4 to 20,000+ users.

Computer Science Department, University of Cape Town   Cape Town, South Africa
Developer (Contract)   Dec. 2000 - Feb. 2001
- Developed an interface and libraries to a VR head-mounted display and 3D tracking system.
- Integrated the hardware into already existing projects and systems.

Scientific Data Systems: Networld   Cape Town, South Africa
Technical Support / Developer (Part-time)   Jun. 1998 - Oct. 2001

- Hired as technician to perform telephone technical support added toDevelopment Team after 2 months.
- Planned and developed an online billing system on my own as well as a custom CD installer.

SKILLS AND EXPERTISE

- **Platforms:** XBox 360, Playstation 3, Xbox One, Playstation4, PC.
- **Languages:** C, C++, CUDA, Java, Linux shell scripting, Python, MySQL, MSSQL, PHP, Javascript, Actionscript
- **Graphics:** HLSL, Cg, GLSL, DirectX 9 - 11, Opengl 2.0 - 4.2, DirectCompute
- **Development:** Visual Studio 2003 - 2013, XCode, Perforce, Git, Subversion.
- **Art:** 3D Studio Max 9 - 2015, Photoshop CS - CC 2014

EDUCATION

University Of Warwick   Warwickshire, United Kingdom

Ph.D., Engineering, March 2011
- Title: Interactive Global Illumination on the CPU
- Advisors: Prof. Alan Chalmers and Dr. Kurt Debattista

University Of Cape Town   Cape Town, South Africa

BSc (Hons), Computer Science, November 2005
- Dissertation: VizMark: Benchmarking Visibility Preprocessing
- Supervisor: Dr. James Gain
- Results: Placed on Dean's merit list, 80% (1st class)

BSc, Computer Science, November 2004
- Major: Computer Science
- Results: Placed on Dean's Merit List, 72% (2nd class)

PUBLICATIONS

Thesis
- **P. Dubla**, 2011, *"Interactive Global Illumination on the CPU"*, PhD thesis, University of Warwick

Journal Papers
- **P. Dubla**, K. Debattista and A. Chalmers, *"Adaptive Interleaved Sampling for Interactive High Fidelity Rendering"*, Computer Graphics Forum 2009, Vol. 28, Issue 8
- K. Debattista, **P. Dubla**, F. Banterle, L. P. Santos and A. Chalmers, *"Instant Caching for Interactive Global Illumination"*, Computer Graphics Forum 2009, Vol. 28, Issue 8

Referred Conference Papers
- **P. Dubla**, K. Debattista, L. P. Santos and A. Chalmers, *"Wait-Free Shared-Memory Irradiance Cache"*, Eurographics Workshop on Parallel Graphics and Visualization 2009
- V. Aggarwal, K. Debattista, **P. Dubla**, T. Bashford-Rogers and A. Chalmers, *"Time-constrained High-fidelity Rendering on Local Desktop Grids"*, Eurographics Workshop on Parallel Graphics and Visualization 2009
- V. Hulusic, G. Czanner, K. Debattista, E. Sikudova, **P. Dubla** and A. Chalmers, *"Investigation of the beat rate effect on frame rate for animated content"*, Spring Conference on Computer Graphics 2009
- J. Happa, M. Williams, G. Turley, G. Earl, **P. Dubla**, G. Beale, G. Gibbons, K. Debattista and A. Chalmers, *"Virtual Relighting of a Roman Statue Head from Herculaneum: A Case Study"*, Afrigraph 2009
- D. Coulthurst, **P. Dubla**, K. Debattista, S. McIntosh-Smith and A. Chalmers, "Parallel Path Tracing using Incoherent Path-Atom Binning", Spring Conference on Computer Graphics 2009
- **P. Dubla**, A. Chalmers and K. Debattista, *"An Analysis of Cache Awareness for Interactive Selective Rendering"*, The 16th International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision 2008
- M. Aranha, **P. Dubla**, K. Debattista, T. Bashford-Rogers and A. Chalmers, *"A Physically-Based Client-Server Rendering Solution For Mobile Devices"*, 6th International Conference on Mobile and Ubiquitous Multimedia 2009

RESEARCH EXPERIENCE AND INTERESTS

- **Interests**
  - High-fidelity rendering, photo-realistic image synthesis, interactive global illumination and ray tracing, real-time rendering and augmented reality.
- **Reviewer:**
  - Computer Graphics and Interactive Techniques (2007)
  - Computer Graphics, Visualization, Computer Vision and Image Processing (2009).
- **Teaching:**
  - Teaching Assistant for 1st and 2nd year Computer Science courses at UCT.
  - *A Crash Course in Everything Web 2.0*: 2nd year Computer Science module at University of Bristol.

PERSONAL

- Began programming at the age of 11 and I was entirely self taught.
- Initial interests were all graphically related with my early work being done in pure assembler in the Turbo Pascal compiler. Early work started with basic demo scene effects such 2D bump-mapping and procedural fire effects graduating to writing things such as a 3D scanline renderer with gouraud-shading.
- Currently interested in a variety of graphics-related subjects: offline rendering, fractal generation, augmented and virtual reality, procedural generation and world building.
- Have been involved in a number of independent and personal game development projects.