

RESUME

RANDALL ROEL RAUWENDAAL

<http://www.rauwendaal.net>
randall@rauwendaal.net

OBJECTIVE

To work with fun, intelligent and interesting people on engaging and challenging problems in the domain of computer graphics and rendering.

EDUCATION

- 2006-2013 **Oregon State University** Corvallis, OR
- Ph.D. in Computer Science – [Voxel Based Indirect Illumination using Spherical Harmonics](#)
 - M.S. in Computer Science – [Hybrid Computational Voxelization using the Graphics Pipeline](#)
- 1999-2004 **University of California at Davis** Davis, CA
- Bachelors of Science in Computer Science and Engineering

COURSEWORK

- Computer Graphics
- Advanced Computer Graphics
- Shader Programming
- Computer Animation
- Computer Vision
- Information Visualization
- Computer-Aided Geometric Design
- Geometric Modeling
- Scientific Visualization
- Machine Learning
- Bayesian Networks
- Differential Geometry

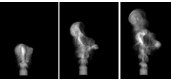
PUBLICATIONS



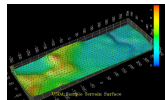
M. Sugihara and **R. Rauwendaal** and M. Salvi, Layered Reflective Shadow Maps for Voxel-based Indirect Illumination, *High Performance Graphics*, 2014. Available online: <https://software.intel.com/en-us/articles/layered-reflective-shadow-maps-for-voxel-based-indirect-illumination>



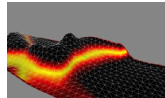
R. Rauwendaal and M. Bailey, Hybrid Computational Voxelization Using the Graphics Pipeline, *Journal of Computer Graphics Techniques (JCGT)*, vol. 2, no. 1, 15-37, 2013. Available online <http://jcgt.org/published/0002/01/02/>



T. Morrison and **R. Rauwendaal**, A Comparison of Data Parallel Techniques for High Fidelity Smoke, *Intel Internal Tech Report*.



D. S. Long, S. B. Wuest, J. D. Williams, **R. Rauwendaal**, M. J. Bailey, Contour Planting: A Strategy to Reduce Soil Erosion on Steep Slopes, *International Conference on Precision Agriculture*. Available online <http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.175.9623>



R. Rauwendaal and M. Bailey, Analyzing Terrain Surfaces to Synthesize and Visualize Optimal-Coverage Tractor Paths for Conservation Farming, *Tech Report*. Available online <http://web.engr.oregonstate.edu/~mjb/WebMjb/Papers/usda.v4.pdf>

EXPERIENCE

- 2014–PRESENT **Intel - Advanced Technology Group (ATG)** Victoria, BC
- Provide architectural advice and consultation to game developers and middleware providers to best enable Intel graphics solutions.
 - Research new real-time graphics techniques targeted at game developers.
- 2006–2013 **Graphics and Image Technology Lab (GAIT)** Corvallis, OR
- Grantee of Intel's Visual Computing Initiative.
- Explored advances in the parallelization and discretization of global illumination algorithms.
- Grantee for USDA Agricultural Research Program.
- Developed a contour following coverage algorithm based on GPU neural networks.
- 2010–2011 **Intel - Advanced Visual Computing (AVC)** Hillsboro, OR
- Worked on the native API for Intel's Many Integrated Core architecture.
 - Co-authored an internal white-paper evaluating several Intel proprietary parallel programming models for vector utilization.

- 2004–2005 **Center for Geotechnical Modeling (CGM)** Davis, CA
- Developed an intuitive application to gather data from a wireless sensor network.
 - Maintained UC Davis NEESit equipment site.
- 2003-2004 **Institute for Data Analysis & Visualization (IDAV)** Davis, CA
- Researched the segmentation of complex datasets through the analysis of Gaussian curvature.
 - Explored the usage of T-spline surfaces as a method for the reconstruction of terrain features based upon curvature and segmentation information.
- SUMMER 2003 **Center for Urban Forest Research (CUFR)** Davis, CA
- Worked to develop a sophisticated 3D tree modeling program.
 - Utilized customized recursive L-systems to generate unique trees.
- SUMMER 2002 **Guidant** Santa Clara, CA
- Maintained critical operations database and developed site features.
 - Developed and designed several featured web pages.
- 1998-1999 **Lockheed Martin Solar Astrophysics Lab** Palo Alto, CA
- Investigated nonlinear dynamics of stellar dynamos.
 - Simulated the magnetic convection currents of the sun.
 - Rendered complex visualizations of solar dynamics.

SKILLS/QUALIFICATIONS

- Extensive knowledge of computer graphics and scientific visualization, global illumination algorithms, geometric modeling, and real-time and photorealistic rendering techniques.
- Proficient in C/C++, Java, Python, and Javascript.
- Experienced with OpenGL, DirectX, GLSL, HLSL, CUDA and many graphics and compute APIs.

INTERESTS

- Computer graphics, global illumination algorithms, real-time rendering techniques, scientific visualization, physically based rendering techniques, and geometric modeling.

CITIZENSHIP

- U.S.
- E.U. (Netherlands)

REFERENCES

References or recommendation letters furnished upon request.