Matthew Trentacoste

email: mt@matttrent.com
URL: http://matttrent.com
phone: +1.415.326.3226

863 Florida St.
San Francisco, CA 94110
USA

Current position

Computer Scientist
Adobe, San Francisco

Areas of specialization

Computer vision, image processing,
visual perception, cooking, kung fu

Synopsis

Ph.D. in image processing & computer vision. Experienced in technology development in academia and companies of all shapes and sizes. Interested in developing technology for awesome projects related to machine learning, computer vision and all things data.

Education

2012 PhD in Computer Science, University of British Columbia
2006 MSc in Computer Science, University of British Columbia
2003 BSc in Computer Science, Carnegie Mellon University

Professional Experience

2013-present *Computer Scientist*, Adobe, San Francisco, CA.
Handled majority of product management responsibilities for mobile photography project. Designed and implemented photo editting UI + underlying GPU image processing algorithms. Developing data pipelines for creative products. Conducting research identifying and classifying visual style of images, as well as recommending content-specific edits.

2009-present *Scientist*, Empty Research, Vancouver, BC.
Multiple projects including computer vision and artificial intelligence algorithms for computational aesthetics, automatically generated websites for mobile devices, and GPU-accelerated mobile photography and vision applications.

2011-2012 *Researcher / Developer*, Pocket Pixels Inc., Vancouver, BC.
Top-selling selective desaturation photography for iPhone and iPad. Completely rebuilt the app's graphics framework, included interactive image adjustments and faster performance. After release, the app rose to #6 in the US store.

2007-2009 *Research Engineer*, Dolby Canada, Vancouver, BC.
Supported the development of Dolby technology licensed to manufacturers, including the *SIM2 Grand Cinema SOLAR*. Developed calibration methods for accurate display of content on HDR displays, and environment sensing setups for adjusting display color to the viewing environment. Reduced visible artifacts from LED variation by 90%.

2004-2007 *Principal Software Developer / Researcher*, BrightSide Technologies, Vancouver, BC.
Responsible for the complete design, development, and implementation of a the video processing pipeline for LED-backlight display prototype, the BrightSide DR37-P. Developed the GPU-accelerated software used for all demos, securing 2 years worth of investment capital. Created third-party API for display hardware. Expanded IP portfolio.

Publications & talks

Journal articles & papers

2014 *Recognizing Image Style*, S. Karayev, M. Trentacoste, H. Han, A. Agarwala, T. Darrell, A. Hertzmann, H. Winnemoeller. British Machine Vision Conf.

2012 *Unsharp Masking, Countershading and Halos: Enhancements or Artifacts?*, M. Trentacoste, R. Mantiuk, W. Heidrich, F. Dufrot. Eurographics

2011 *Glare Encoding of High Dynamic Range Images*, M. Rouf, R. Mantiuk, W. Heidrich, M. Trentacoste, C. Lau. CVPR

2011 *Blur-Aware Image Downsampling*, M. Trentacoste, R. Mantiuk, W. Heidrich. Eurographics

2010 *Defocus Techniques for Camera Dynamic Range Expansion*, M. Trentacoste, C. Lau, M. Rouf, R. Mantiuk, W. Heidrich. Proceedings. of Human Vision and Electronic Imaging XXI

2007 *Photometric Image Processing for High Dynamic Range Displays*, M. Trentacoste, W. Heidrich, L. Whitehead, H. Seetzen, G. Ward. Journal of Visual Communication and Image Representation, Special Issue on High Dynamic Range Imaging

2007 *Ldr2Hdr: On-the-fly Reverse Tone Mapping of Legacy Video and Photographs*, A. G. Rempel, M. Trentacoste, H. Seetzen, D. Young, W. Heidrich, L. Whitehead, G. Ward. Transactions on Graphics, SIGGRAPH

2005 *Real Illumination from Virtual Environments*, A. Ghosh, M. Trentacoste, H. Seetzen, and W. Heidrich. Eurographics Symposium on Rendering

2005 *Volume Rendering for High Dynamic Range Displays*, A. Ghosh, M. Trentacoste and W. Heidrich. International Workshop on Volume Graphics

2004 *High Dynamic Range Display Systems*, H. Seetzen, W. Heidrich, W. Stuerzlinger, G. Ward, L. Whitehead, M. Trentacoste, A. Ghosh, A. Vorozcovs. Transactions on Graphics, SIGGRAPH

Patents

2009 *Mitigation of LCD Flare*, G. Ward, J. Harrison, H. Seetzen, M. Trentacoste, US 2010/0277515 A1

2007 *Multiple Modulator Displays and Related Methods*, W. Heidrich, M. Trentacoste, G. Ward, H. Seetzen, US 2010/0091045 A1

Other refereed contributions

2006 *It's Tea Time!*, K. Lemke, M. Trentacoste, A. Treuille, M. Goesele, W. Heidrich, B. Mones, SIGGRAPH 2006 Teapot Exhibit

2005 *Real Illumination from Virtual Environments*, A. Ghosh, M. Trentacoste, H. Seetzen, and W. Heidrich, SIGGRAPH Sketch Program

2005 *Tutorial on High Dynamic Range Techniques*, M. Goesele, W. Heidrich, B. Hoefflinger, G. Krawczyk, K. Myszkowski, M. Trentacoste, Eurographics

2004 *Sunnybrook Technologies HDR display demonstration*, Sunnybrook Techlonogies, SIGGRAPH Emerging Technologies booth

Talks

2013 PyData NYC

2011 Bangor University, Adobe, Disney Research, Massachusetts Institute of Technology, NVIDIA

Thesis

PhD *Manipulating Scale-Dependent Perception of Images*

Evaluation of how the perceptual of blur and contrast depends on the scale at which image features are represented in the human visual system and several algorithms that leverage this understanding to alter image appearance.

MSc *Photometric Image Processing for High Dynamic Range Displays*

Techniques for the calibration and processing images for display on new high dynamic range display devices for reproducing photometrically accurate images.

Honors *Implementing Performance Numerical Libraries on Graphics Hardware*

A simple method to implement floating-point vector math operations and matrix multiplication on graphics hardware, identifying performance characteristics of hardware and softare.

Skills

Experienced in both academic research and product development. Significant image processing experience, including GPU-based. Programming languages are many, with an emphasis on C-variants & Python. Background in visual perception, experienced photographer. World-travelling vagabond, comfortable living out of a suitcase. Bio-hacker, well-versed in experimentation and self-programming. Amateur chef. Martial artist. Avant-gardener.

References

Ask and ye shall receive.