Jonathan T. Barron

jonbarron@gmail.com
https://jonbarron.info

Education

University of California, Berkeley
Ph.D. in Computer Science   Fall 2008 – Summer 2013
Cumulative GPA of 4.0 / 4.0
NSF Graduate Research Fellowship, 2009
C.V. Ramamoorthy Distinguished Research Award, 2013

Massachusetts Institute of Technology
Visiting Ph.D. Student   Spring 2012

University of Toronto
Honours B.Sc. (Computer Science Specialist: Artificial Intelligence Option)   Fall 2003 – Spring 2007
Cumulative GPA of 3.73 / 4.0
Graduated with High Distinction
Dean's List Scholar, 2004, 2005, 2006, 2007
Dr. James A. & Connie P. Dickson Scholarship, 2006, 2007

Citizenship: United States

Scientific Publications

Mazumdar, A., Alaghi, A., Barron, J. T., Gallup, D., Ceze, L., Oskin, M., Seitz, S. M., **A Hardware-Friendly Bilateral Solver for Real-Time Virtual Reality Video**, High-Performance Graphics (HPG), 2017

Gharbi, M., Chen, J., Barron, J.T., Hasinoff, S.W., Durand, F., **Deep Bilateral Learning for Real-Time Image Enhancement,** *SIGGRAPH*, 2017

Barron, J.T., Tsai, Y., **Fast Fourier Color Constancy,** *Computer Vision and Pattern Recognition (CVPR)*, 2017

Anderson, R., Gallup, D., Barron, J.T., Kontkanen, J., Snavely, N., Hernández, C., Agarwal, S., Seitz, S.M., **Jump: Virtual Reality Video** SIGGRAPH Asia, 2016

Hasinoff, S.W., Sharlet, D., Geiss, R., Adams, A., Barron, J.T., Kainz, F., Chen, J., Levoy, M., **Burst Photography for High Dynamic Range and Low-Light Imaging on Mobile Cameras**, *SIGGRAPH Asia*, 2016

Barron, J.T., Poole, B., **The Fast Bilateral Solver**, *European Conference on Computer Vision (ECCV)*, 2016 (Best Paper Honorable Mention)

DiVerdi, S., Barron, J.T., **Geometric Calibration for Mobile, Stereo, Autofocus Cameras**, *Winter Conference on Applications of Computer Vision (WACV)*, 2016

Chen, L.-C., Barron, J.T., Papandreou, G., Murphy, K., Yuille, A.L., **Semantic Image Segmentation with Task-Specific Edge Detection Using CNNs and a Discriminatively Trained Domain Transform,** *Computer Vision and Pattern Recognition (CVPR)*, 2016

Barron, J.T, **Convolutional Color Constancy**, *International Conference on Computer Vision (ICCV)* 2015

Barron, J.T., Malik, J., **Intrinsic Scene Properties from a Single RGB-D Image,** *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)* 2015

Barron, J. T., Adams, A., Shih, Y., Hernández, C., **Fast Bilateral-Space Stereo for Synthetic Refocus** *Computer Vision and Pattern Recognition (CVPR)* 2015

Barron, J.T., Malik, J., **Shape, Illumination, and Reflectance from Shading,** *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)* 2015

Arbeláez, P., Pont-Tuset, J., Barron, J.T., Marqués, F., Malik, J., **Multiscale Combinatorial Grouping**, *Computer Vision and Pattern Recognition (CVPR)* 2014

Barron, J.T., Arbeláez, P., Keränen, S.V. E., Biggin, M.D., Knowles, D.W., Malik, J., **Volumetric Semantic Segmentation using Pyramid Context Features**, *International Conference on Computer Vision (ICCV)* 2013

Li, H., Vouga, E., Gudym , A., Barron, J.T., Luo, L., Gusev, G., **3D Self-Portraits,** *SIGGRAPH Asia* 2013

Barron, J.T., Malik, J., **Intrinsic Scene Properties from a Single RGB-D Image**, *Computer Vision and Pattern Recognition (CVPR)* 2013. **(Oral Presentation)**

Karsch, K., Liao, Z., Rock, J., Barron, J.T., Hoiem, D. **Boundary Cues for 3D Object Shape Recovery**, *Computer Vision and Pattern Recognition (CVPR)* 2013.

Barron, J.T., Malik, J., **Color Constancy, Intrinsic Images, and Shape Estimation**, *European Conference on Computer Vision (ECCV)* 2012.

Barron, J.T., Malik, J., **Shape, Albedo, and Illumination from a Single Image of an Unknown Object**, *Computer Vision and Pattern Recognition (CVPR)* 2012.

Keränen, S.V.E., Barron, J.T., Arbelaez, Pablo., Malik, J., Biggin, M.D., Knowles, D.W., **Developing a quantitative, cellular resolution morphology and gene expression atlas for Drosophila embryogenesis: A digital 'Campos-Ortega and Hartenstein'**, *Drosophila Annual Research Conference* 2012.

Janoch, A., Karayev, S, Jia, Y, Barron, J. T., Fritz, M., Saenko, K., Darrell, T., **A Category-Level 3-D Object Dataset: Putting the Kinect to Work**, *International Conference on Computer Vision (ICCV) 3DRR Workshop* 2011.

Barron, J. T., Malik, J., **High-Frequency Shape and Albedo from Shading using Natural Image Statistics**, *Computer Vision and Pattern Recognition (CVPR)* 2011.

Barron, J. T., Malik, J., **Shape and Albedo from Shading using Natural Image Statistics**, *Vision Sciences Society Meeting (VSS)* 2011.

Knowles, D.W., Keränen, S.V.E., Arbelaez, P., Barron, J.T., Malik, J., Biggin, M.D., **Cellular phenotyping, morphology and gene expressing mapping through Drosophila embryogenesis**, *Automated Imaging & High-Throughput Phenotyping* 2010

Barron, J. T., Malik, J., **Discovering Efficiency in Coarse-To-Fine Texture Classification**, *Technical Report, UC Berkeley*, 2010.

Deeds, J. D., Ostrom, L., He, D., Miller, C., Conway, C., Mosher, R., Barron, J. T., **Automated detection of basal cell keratinocytes for quantification of immunohistochemistry biomarkers**, *Archives of Pathology & Laboratory Medicine* 2009, Vol 133 no. 7, p 1151

Barron, J. T., Hogg, D. W., Lang, D., Roweis, S., 2008, ***Blind Date*: Using proper motions to determine the ages of historical images**, *Astronomical Journal* 136, 2008

Barron, J. T., Stumm, C., Hogg, D. W., Lang, D., Roweis, S., 2008, **Cleaning the USNO-B Catalog through automatic detection of optical artifacts**, *Astronomical Journal* 135, 2008

Employment History

Google Research, Mountain View, CA
Senior Research Scientist   2013 - Now
 - Computer vision and computational photography research.
 - Worked on Lens Blur, HDR+, Jump, Google Photos, and Glass.

Captricity, Berkeley, CA
Consultant   Summer 2011
Technical Board of Advisors   2015 - Now
 - Designed and implemented a system for large-scale document registration.

NASA Ames Research Center, Moffett Field, CA
Intern (Intelligent Robotics Group)   Summer 2009
 - Developed a system for lunar photoclinometry (shape-from-shading).

Google, New York, NY / Mountain View, CA
Intern (Research Group)   Summer 2008
 - Worked on a very early version of "Google Brain".

Novartis Institutes for Biomedical Research, Cambridge, MA
Computational Biology Intern / Consultant   Summer 2007
 - Developed a computer vision system for automated tumor segmentation and classification.
 - Won 2nd place in the 2007 NIBR Cambridge Summer Poster Session

BAE Systems – **Advanced Information Technologies,** Burlington, MA
Intern (Multisensor Exploitation Team)   Summer 2005, 2006
 - Working on dynamic mapping interfaces, virtual reality systems, and 3D audio localization.
 - Received the BAE AIT 2006 Recognition Award.

Academic Research Experience

University of California, Berkeley - Prof. Jitendra Malik
PhD Student / Graduate Student Researcher   Fall 2008 - Spring 2013
 - Exploring methods for integrating shape-from-shading, intrinsic-image separation, and segmentation.
 - Developing techniques for automatic gene expression analysis in late-stage drosophila embryo imagery.

New York University - Prof. Rob Fergus, Prof. David W. Hogg, Prof. Yann LeCun
Junior Research Scientist   Fall 2007 – Spring 2008
 - Explored applications of deep learning for image search.
 - Worked on Astrometry.net

University of Toronto - Prof. Sam Roweis
Research Assistant   Spring 2007 – Summer 2007
 - Worked on Astrometry.net

University of Toronto - Prof. Fahiem Bacchus
Research Assistant   Fall 2006
 - Developed a satisfiability preprocessor based on hyper-binary resolution and equality reduction.

Teaching Experience

University of California, Berkeley: CS188 - Introduction to Artificial Intelligence
Graduate Student Instructor (TA)
 - Fall 2010, with Prof. Dan Klein
 - Spring 2011, with Prof. Pieter Abbeel

Student Activities

University of California, Berkeley
Artificial Intelligence: A Modern Approach, by Stuart Russell and Peter Norvig, 3rd Edition
     -Drafted and revised figures (2009)

University of Toronto
The Gargoyle (newspaper)
 - Production Manager (2006, 2007)
 - Editor (2005, 2006, 2007)

The UC Review (arts and literary magazine)
 - Editor in Chief (2005, 2007)
 - Editor (2004)