

Jongmin Baek (Ph. D.)

CONTACT INFORMATION jbaek@cs.stanford.edu 408.642.9165 (Cell)
 cs.stanford.edu/people/jbaek

AREAS OF INTEREST Machine learning, computer vision, computational photography, image processing, performance optimization, machine learning platforms.

OBJECTIVE Technical leadership in areas of applied machine learning.

Informally speaking, I make bits do interesting things, and do so very efficiently at algorithmic and architectural levels. Recently I have worked on more high-level machine learning tasks, leading a team through various multi-quarter and multi-year cross-functional projects.

CURRENT EMPLOYMENT **Dropbox, Inc. (Current)**, San Francisco, CA

Staff Machine Learning Engineer / Engineering Manager **2019–**
Senior Machine Learning Engineer **2015–**
Machine Learning Engineer **2014–**

- Led the development and productionization of various ML-powered content and activity suggestion features in Dropbox products, as the tech lead and the engineering manager.
- Contributed to the organizational and technical strategy for integrating ML into products.
- Built and optimized parts of Dropbox’s in-house OCR pipeline.
- Owned most of the algorithms in Dropbox’s mobile document scanner (detection, rectification, shadow removal, quantization, compression) and the strategy for cross-platform integration of the computer vision code.
- Authored the image processing stack at Dropbox, which processes orders of petabytes of data daily and powers the image preview pipeline.
- Drove internal tooling around machine-learning development and modeling pipeline.
- Authored [many technical blog posts](#) and patents for Dropbox, which describe the aforementioned projects.
- Worked on and open-sourced libraries for [image processing](#) and [compression](#).
- Served as one of the dozen or so senior members of the engineering organization that moderated hiring debriefs for engineers, having moderated 100+ hiring debriefs.
- Won or was nominated for award at company Hack Week for each of the past six years.

EDUCATION **Stanford University**, Stanford, CA

Ph.D. in [Computer Science](#) (2008 – 2013) under Prof. [Marc Levoy](#).

- Thesis title: *[WYSIWYG Computational Photography via Viewfinder Editing](#)*

M.S. in [Computer Science](#) (2008 – 2011; GPA 4.3/4.0)

Massachusetts Institute of Technology, Cambridge, MA

M.Eng. in [Electrical Engineering and Computer Science](#) (2008) under Prof. [Frédo Durand](#).

- Thesis title: *[Multi-channel Coded-aperture Photography](#)*

B.S. in [Computer Science and Engineering](#) (2004 – 2008; GPA 5.0/5.0)

B.S. in [Mathematics \(Theory\)](#) (2004 – 2008; GPA 5.0/5.0)

- PUBLICATIONS Baek, J., Pająk, D., Kim, K., Pulli, K. and Levoy, M. [WYSIWYG Computational Photography via Viewfinder Editing](#). *ACM SIGGRAPH Asia*. 2013.
- Baek, J., Adams, A. B. and Dolson, J. Lattice-based High-Dimensional Gaussian Filtering and the Permutohedral Lattice. *Journal of Mathematical Imaging and Vision*. 2013.
- Baek, J., Jacobs, D. E. and Levoy, M. [Accelerating Spatially Varying Gaussian Filters](#). *ACM SIGGRAPH Asia*. 2010.
- Adams, A. B., Talvala, E., Park, S. H., Jacobs, D. E., Ajdin, B., Gelfand, N., Dolson, J., Vaquero, D., Baek, J., Tico, M., Lensch, H. P. A., Matusik, W., Pulli, K., Horowitz, M. and Levoy, M. [The Frankencamera: an Experimental Platform for Computational Photography](#). *ACM SIGGRAPH*. 2010.
- Dolson, J., Baek, J., Plagemann, C. and Thrun, S. [Upsampling Range Data in Dynamic Environments](#). *IEEE Computer Vision and Pattern Recognition*. 2010.
- Baek, J. [Transfer Efficiency and Depth Invariance in Computational Cameras](#). *IEEE International Conference in Computational Photography*. 2010.
- Adams, A. B., Baek, J. and Davis, M. A. [Fast High-Dimensional Filtering using the Permutohedral Lattice](#). *Eurographics*. 2010.
- Jacobs, D. E., Baek, J. and Levoy, M. [Focal Stack Compositing for Depth of Field Control](#). Tech. report CSTR-2012-01, Stanford.
- Karpenko, A., Jacobs, D. E., Baek, J. and Levoy, M. [Digital Video Stabilization and Rolling Shutter Correction using Gyroscopes](#). Tech. report CSTR 2011-03, Stanford.
- INVITED TALKS WYSIWYG Computational Photography via Viewfinder Editing. *GPU Technology Conference*. Santa Clara, CA, 2014.
- PATENTS U.S. Patents 9,407,814; 9,799,106; 9,941,900; 10,177,783; 10,209,086 and a few more pending.
- PAST EMPLOYMENT [NVIDIA Research](#), Santa Clara, CA
Intern, Mobile Visual Computing (MVC) Group **Summer 2012, 2013**
- Led the development of algorithms and interfaces for editing on a live viewfinder of a mobile camera. See above sections on education and publications.
- [Department of Computer Science, Stanford University](#), Stanford, CA
Teaching Fellow **Winter 2011**
- Taught [CS478](#), a graduate course in computational photography; was responsible for lectures, assignments, and development environment; advised students on final projects.
- [Google, Inc.](#), Mountain View, CA
Intern, Site Reliability Engineering **Summer 2010**
- Analyzed the search indexing pipeline to identify latencies in various stages, processing large datasets with map-reduce pattern. (C++)
- RECOGNITIONS
- Lucent Technology Fellowship / Stanford Graduate Fellowship (2010)
 - National Science Foundation Graduate Research Fellowship: Honorable Mention (2009)
 - Honored as a top 5 students in the graduating class within the department at MIT (2008)
 - William Lowell Putnam Mathematical Competition: Honorable Mention (2005)
 - USA Mathematical Olympiad: Winner (2004), Honorable Mention (2002, 2003)