

OBJECTIVE Technical leadership in areas of applied AI and machine learning.

ABOUT Informally speaking, I make bits do interesting things, and do so very efficiently at algorithmic, architectural and systemic levels. In recent years I have been quarterbacking high-level ML projects, leading organizations through multi-quarter or multi-year cross-functional efforts.

While I operate from a position of technical leadership, I do author and review a great deal of code. For instance, I was ranked #1 in the entire company (~1,000 engineers) in 2025 on a company-internal code productivity metric.

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

<i>Principal Machine Learning Engineer</i>	<b>2026–</b>
<i>Staff Machine Learning Engineer</i>	<b>2019–</b>
<i>Senior Engineering Manager</i>	<b>2019–2020</b>
<i>Senior Machine Learning Engineer</i>	<b>2015–</b>
<i>Machine Learning Engineer</i>	<b>2014–</b>

*Selected Project Areas*

- **Agentic AI Systems (2025–)**: have been evolving Dropbox Dash as an AI product, working across both infrastructure and AI/ML.
- **Multimodal AI (2024-2025)**: architected and launched Dash Multimedia Search, a multi-year strategic offering for Dropbox, across image metadata, OCR, and visual semantics.
- **Retrieval Systems (2022–2024)**: led the overhaul of the ranking algorithms, architectures and systems for Dropbox search, which indexes trillion files, as the tech lead; drove the development of semantic search and integration of LLMs, RAG into the search stack.
- **Recommendation Systems (2019–2022)**: drove the development and productionization of several zero-to-one content and activity suggestion features in Dropbox products, as the tech lead and the engineering manager.
- **Representation Learning (2018–2022)**: oversaw the development of various learned representations for use in high-level ML projects at Dropbox.
- **OCR (2017-2018)**: built and optimized several parts of Dropbox’s in-house OCR pipeline.
- **Document Scanner (2015–2016)**: owned most algorithms in Dropbox’s mobile document scanner and the strategy for cross-platform integration of the computer vision code.
- **Image Processing (2014–2015)**: authored the early image processing stack at Dropbox that processes petabytes of data daily, that optimized compute via SIMD instructions that reduced the cluster size by 50%+ and resulted in \$6M+ annual saving.

*Other Contributions*

- Served as the ML engineer-at-large in the company, contributing to the organizational and technical strategy for integrating ML into products, and driving internal tooling for ML.
- Authored [many technical blog posts](#), many patents and open-source projects for Dropbox.
- Mentored and provided guidance to tech leads of several other ML teams at Dropbox.
- Served on hiring committees as a moderator, having moderated 200+ hiring debriefs; conducted 400+ interviews, both technical and non-technical (coding, behavioral, ML, etc.)
- Contributed to key engineering initiatives outside ML (Python, Go upgrades; various migrations.)

EDUCATION [Stanford University](#), Stanford, CA

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

- Thesis: [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](#).

B.S. x 2 in [Computer Science and Engineering](#) (2004 – 2008; GPA 5.0/5.0)

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

PAPERS

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.

PAST WORK [NVIDIA Research](#), Santa Clara, CA

*Intern, Mobile Visual Computing (MVC) Group*

**Summer 2012, 2013**

[Stanford University](#), Stanford, CA

*Teaching Fellow, Department of Computer Science*

**Winter 2011**

[Google, Inc.](#), Mountain View, CA

*Intern, Site Reliability Engineering*

**Summer 2010**

AWARDS

- Multiple awards at company-wide Hack Week events (2014–Present)
- Lucent Technology Fellowship / Stanford Graduate Fellowship (2010)
- Honored as a top-5 student 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)