Curriculum Vitae
Daehwan Kim

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Citizenship: South Korea (US Permanent Resident)

Professional Experience:

- **Johns Hopkins University School of Medicine** June 2013 - Present
  Post-doctoral Research Fellow in McKusick-Nathans Institute of Genetic Medicine
  Center for Computational Biology led by Dr. Steven L. Salzberg

- **Johns Hopkins University School of Medicine** Sep 2011 - May 2013
  Trainee in McKusick-Nathans Institute of Genetic Medicine
  Center for Computational Biology led by Dr. Steven L. Salzberg

- **University of Maryland, College Park** June 2010 - May 2013
  Graduate Research Assistant in Dr. Steven L. Salzberg's lab
  - Working on TopHat, Cufflinks, and TopHat-Fusion

- **University of Maryland, College Park** Sep 2008 - May 2010
  Graduate Teaching Assistant (see homepage for more details)

- **Nexon DD, Seoul, South Korea** Oct 2003 - Jul 2008
  (a game development company)
  Chief Technology Officer & Manager
  - Led several projects as team manager and main developer
  - Responsible for hiring and managing developers
  - Set and maintained software development process for quality and accuracy of projects

Education:

- **University of Maryland, College Park** Sep 2008 - May 2013
  Ph.D. in Computer Science (GPA: 4.0/4.0)
  Supervised under Dr. Steven L. Salzberg

- **Chung-Ang University, Seoul, South Korea** Mar 2000 - Feb 2004
  B.Eng. in Computer Science and Engineering
  Summa cum laude

Journal Publications:

- HISAT-genotype: practical approach for analyzing human variation on a personal computer
  Daehwan Kim and Steven L. Salzberg. *in preparation*.
- Centrifuge: rapid and accurate classification of metagenomic sequences.
  Daehwan Kim, Li Song, Florian Breitwieser, and Steven L. Salzberg. *in preparation*.
- OperonDB: comprehensive database of operons in 2759 bacterial and archaeal genomes.
  Daehwan Kim, Corina Antonescu, Mihaela Pertea, and Steven L. Salzberg. *in preparation*.
- The novel fusion transcript NR5A2-KLHL29 is generated by an insertion at the KLHL29 locus
  Zhenguo Sun, Steven L. Salzberg, Daehwan Kim, Valentin Antonescu, Yulan Cheng, Jee Hoon Song, Xiquan Ke, Binbin Huang, John M. Abraham, Sariat Ibrahim, and Stephen J. Meltzer *submitted*.
- Transcript-level expression analysis of RNA-seq experiments with HISAT, StringTie, and Ballgown
  Mihaela Pertea, Daehwan Kim, Jack Minyang Fu, Geo Pertea, Jeffrey T. Leek, and Steven L. Salzberg. *To appear in Nature Protocols* soon.
- HISAT: a fast spliced aligner with low memory requirements
  Daehwan Kim, Ben Langmead, and Steven L. Salzberg. *Nature Methods* 12, 357-360 (2015).
- Reconstruction and Estimation of Fusion Transcripts from RNA-Sequencing reads.
  Daehwan Kim and Steven L. Salzberg. *in preparation*.
- TopHat2: accurate alignment of transcriptomes in the presence of insertions, deletions and gene fusions.
  Daehwan Kim, Geo Pertea, Cole Trapnell, Harold Pimentel, Ryan Kelley, and Steven L. Salzberg. *Genome Biology* 2013, 14:R36.
- Differential Gene and Transcript Expression Analysis of RNA-Seq Experiments with TopHat and Cufflinks.
  Cole Trapnell, Adam Roberts, Loyal Goff, Geo Pertea, Daehwan Kim, David R. Kelley, Harold Pimentel, Steven L. Salzberg, John L. Rinn, and Lior Pachter. *Nature Protocols* 7, 562578 (2012).
- TopHat-Fusion: an algorithm for discovery of novel fusion transcripts.
  Daehwan Kim and Steven L. Salzberg. *Genome Biology* 2011, 12:R72.

Invited talks:

- HISAT-genotype: practical approach for analyzing human variation on a personal computer.
  Korea Institute of Science and Technology (KIST) (May 2016)
  Mini-Symposium of Informatics, University of Colorado, Denver (Apr. 2016)

- Graph-based alignment of next-generation sequencing reads to a population of human genomes
  Broad Institute (Dec. 2015)
  Seven Bridges Genomics (Dec. 2015)
  Genome Informatics, Cold Spring Harbor Laboratory (Oct. 2015)

Honors and Awards:

- Best Poster Award - Johns Hopkins' Annual Young Investigator Symposium on Genomics and Bioinformatics (Sep 2011)
- Block Grant Fellowship - University of Maryland, College Park (2008 - 2010)
- Employee of the Year for 2005 and 2006 - Nexon DD (awarded $10,000 prize each year)

Academic Background:

- Computer Science (B.Eng. and Ph.D. degrees)
- Mathematics: self-taught most undergraduate mathematics courses (see homepage)
- Some biology and electrical engineering courses: self-taught (see homepage)

Skills:

- **Programming Languages and Libraries**
  C/C++ (>10 years), Visual Basic, Java, Python, Perl, OCaml, ASP, Ruby, Lua
  STL, MFC, Boost, DirectX, OpenGL, CUDA, Hadoop, ACE (Adaptive Communication Environment), Gamebryo, OGRE, Torque
- **Tools**
  Emacs, VIM, gcc/g++/gdb, Make, CVS/SVN, LaTeX, Visual Studio, Coq, MySQL, Matlab, Mathematica
- **Operating Systems**
  Excellent working knowledge of Linux, Windows, Mac
- **Embedded Systems**
  ARM9 Embedded Board, ATmega128 MCU, WinAVR Compiler, Ponyprog

References:

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