

DANIEL HAEHN

103 Holden Green, Cambridge, MA 02138, +1.617.701.root, haehn@ieee.org

Machine learning + Visualization + Imaging

EDUCATION

- Harvard University** · Cambridge, Massachusetts
PhD Candidate · Computer Science · since September 2013, expected graduation May 2019
- University of Heidelberg** · Heidelberg, Germany
Diplom (M.S.) · Medical Computer Science · March 2010 · Area of Study: Signal- and Image Processing
Thesis Topic: Coronary Artery Centerline Extraction · Thesis Grade: excellent (A)
Vordiplom (B.S.) · Medical Computer Science · March 2007 · With Honors, Rank #1 of class, all study fees waived
- Harvard Medical School** · Boston, Massachusetts
Exchange Student at the Surgical Planning Laboratory at Brigham and Women's Hospital · October 2008 to August 2009

AWARDS

- Winkler Scholarship (\$15,000 / year) · July 2015 to July 2018
- Harvard University Fellowship and Research Assistantship (\$64,000 / year) · September 2013 to June 2019
- Realtime Live! presentation of Slice:Drop at ACM SIGGRAPH · July 2013
- Visualizing.org Winning Project for IEEE Vis 2012 · September 2012
- INCF Neuroinformatics 2012 Spotlight Presentation (8 selected out of 151 accepted submissions) · September 2012
- Mozilla Hacks Dev Derby "WebGL", 2nd Place · June 2012
- 1st Prize for End User Tutorial, National Alliance of Medical Image Computing (NA-MIC) · January 2010
- Karl Steinbuch Foundation Scholarship (\$12,000) · November 2008 to November 2009
- Thomas Gessmann Foundation Scholarship (\$10,000) · October 2007 to October 2009

PROFESSIONAL

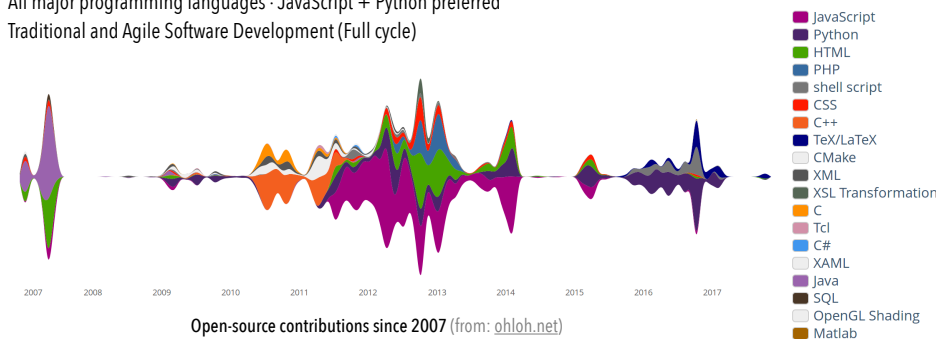
- Boston Children's Hospital** · Boston, Massachusetts · September 2011 to August 2013
Research Software Developer III · Fetal Neonatal Neuroimaging and Developmental Science Center
- University of Pennsylvania** · Philadelphia, Pennsylvania · June 2010 to August 2011
Research Scholar and Software Engineer · Section for Biomedical Image Analysis
- University of Heidelberg** · Heidelberg, Germany · October 2004 to March 2010
Graduate Research Assistant

INTERNSHIPS

- Apple, Inc.** · 2017
- Mental Canvas** · 2014

SKILLS

All major programming languages · JavaScript + Python preferred
Traditional and Agile Software Development (Full cycle)



PROJECTS

- Dojo (JavaScript/Python/WebGL)** [~9,700 LOC]
interactive proofreading of image data
role: maintainer, developer [100%]
- Slice:Drop (JavaScript/WebGL)** [~17,600 LOC]
interactive viewer for medical imaging data
role: maintainer, developer [94%, 4 devs.]
- XTK (JavaScript/WebGL)** [~11,700 LOC]
SDK for scientific visualization using WebGL
role: maintainer, developer [70%, 19 devs.]
- 3D Slicer (C++/Python)** [~1.4M LOC]
medical image analysis, role: dev. [2%, 91 devs.]

PEOPLE

- MENTORS**
Professor Hanspeter Pfister · Harvard University · pfister@seas.harvard.edu
Professor Jeff W. Lichtman · Harvard University · jeff@mcb.harvard.edu
Professor Ron Kikinis · Harvard Medical School · kikinis@bwh.harvard.edu
Professor Kilian Pohl · Stanford University · kilian.pohl@sri.com
Professor Ellen Grant · Harvard Medical School · ellen.grant@childrens.harvard.edu
Dr. Steve Pieper · Isomics Inc. · pieper@bwh.harvard.edu
Dr. Rudolph Pienaar · Boston Children's Hospital · rudolph.pienaar@childrens.harvard.edu

STUDENTS

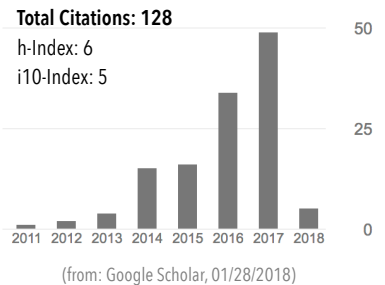
- Jay Andrew Robinson · 2013
- William Zhang · 2015
- Eagon Meng · 2015
- Omar Shaikh · 2016
- John Hoffer · 2016, 2017

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Articles In Preparation

[1] **Haehn, D.**, Kaynig, V., Tompkin, J., Lichtman, J.W. and Pfister, H., 2017. Guided Proofreading of Automatic Segmentations for Connectomics. arXiv preprint arXiv:1704.00848. *Submitted to CVPR 2018*.



Published Articles

First-authored

[2] **Haehn, D.**, Hoffer, J., Matejek, B., Suissa-Peleg, A., Al-Awami, A.K., Kamensky, L., Gonda, F., Meng, E., Zhang, W., Schalek, R. and Wilson, A., Parag, T., Beyer, J., Kaynig, V., Jones, T.R., Tompkin, J., Hadwiger, M., Lichtman, J.W. and Pfister, H., 2017, August. Scalable Interactive Visualization for Connectomics. In *Informatics* (Vol. 4, No. 3, p. 29). Multidisciplinary Digital Publishing Institute.

[3] **Haehn, D.**, Knowles-Barley, S., Roberts, M., Beyer, J., Kasthuri, N., Lichtman, J.W. and Pfister, H., 2014. Design and Evaluation of Interactive Proofreading Tools for Connectomics. In *IEEE Transactions on Visualization and Computer Graphics*, 20(12), pp.2466-2475.

[4] **Haehn, D.**, Rannou, N., Ahtam, B., Grant, P.E. and Pienaar, R., 2014. Neuroimaging in the Browser using the X Toolkit. In *Frontiers in Neuroinformatics*, 101.

[5] **Haehn, D.**, Rannou, N., Grant, P.E. and Pienaar, R., 2013. Slice:Drop: Collaborative Medical Imaging in the Browser. *ACM SIGGRAPH 2013 Computer Animation Festival*.

[6] **Haehn, D.**, 2010. Coronary Artery Centerline Extraction in 3D Slicer using VMTK based Tools. Master's Thesis (Diplomarbeit), Department of Medical Informatics, University of Heidelberg.

Co-authored

[7] Matejek, B., **Haehn, D.**, Lekschas, F., Mitzenmacher, M. and Pfister, H., 2017, September. Compresso: Efficient Compression of Segmentation Data For Connectomics. In *International Conference on Medical Image Computing and Computer-Assisted Intervention*, pp. 781-788. Springer, Cham.

[8] Pienaar, R., Turk, A., Bernal-Rusiel, J., Rannou, N., **Haehn, D.**, Grant, P.E. and Krieger, O., 2017, September. CHIPS-A Service for Collecting, Organizing, Processing, and Sharing Medical Image Data in the Cloud. In *VLDB Workshop on Data Management and Analytics for Medicine and Healthcare*, pp. 29-35. Springer, Cham.

[9] Gonda, F., Kaynig, V., Jones, T.R., **Haehn, D.**, Lichtman, J.W., Parag, T. and Pfister, H., 2017, April. ICON: An Interactive Approach to train Deep Neural Networks for Segmentation of Neuronal Structures. In *IEEE 14th International Symposium on Biomedical Imaging (ISBI)*, pp. 327-331.

[10] Suissa-Peleg, A., **Haehn, D.**, Knowles-Barley, S., Kaynig, V., Jones, T.R., Wilson, A., Schalek, R., Lichtman, J.W. and Pfister, H., 2016. Automatic Neural Reconstruction from Petavoxel of Electron Microscopy Data. *Microscopy and Microanalysis*, 22 (S3), pp. 536-537.

[11] Schalek, R., Lee, D., Kasthuri, N., Peleg, A., Jones, T., Kaynig, V., **Haehn, D.**, Pfister, H., Cox, D. and Lichtman, J.W., 2016. Imaging a 1 mm³ volume of Rat Cortex using a MultiBeam SEM. *Microscopy and Microanalysis*, 22 (S3), pp.582-583.

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Published Articles (continued)

Co-authored (continued)

- [12] Ai-Awami, A.K., Beyer, J., **Haehn, D.**, Kasthuri, N., Lichtman, J.W., Pfister, H. and Hadwiger, M., 2016. NeuroBlocks–Visual Tracking of Segmentation and Proofreading for Large Connectomics Projects. *IEEE Transactions on Visualization and Computer Graphics*, 22(1), pp.738-746.
- [13] Pienaar, R., Rannou, N., Bernal, J., **Haehn, D.** and Grant, P.E., 2015, August. ChRIS-A web-based Neuroimaging and Informatics system for Collecting, Organizing, Processing, Visualizing and Sharing of Medical Data. In *IEEE 37th Annual International Conference of the Engineering in Medicine and Biology Society (EMBC)*, pp. 206-209.
- [14] Im, K., Ahtam, B., **Haehn, D.**, Peters, J.M., Warfield, S.K., Sahin, M. and Grant, P.E., 2015. Altered Structural Brain Networks in Tuberos Sclerosis Complex. *Cerebral Cortex*, 26(5), pp.2046-2058.
- [15] Klein, A., Bao, F.S., Haeme, Y., Stavsky, E., Giard, J., **Haehn, D.**, Nichols, N. and Ghosh, S.S., 2012. Mindboggle: Automated human brain MRI feature extraction, labeling, morphometry, and online visualization. *F1000Research*, 3.
- [16] Choe, M.S., Ortiz-Mantilla, S., Makris, N., Gregas, M., Bacic, J., **Haehn, D.**, Kennedy, D., Pienaar, R., Caviness Jr, V.S., Benasich, A.A. and Grant, P.E., 2012. Regional infant brain development: an MRI-based morphometric analysis in 3 to 13 month olds. *Cerebral Cortex*, 23(9), pp.2100-2117.

Professional Service / Outreach / Teaching

Reviewer for *Frontiers in Neuroinformatics*.

Reviewer for *Neuroinformatics*.

Reviewer for *ACM CHI 2018*.

Technical Reviewer for *Matsuda and Lea: WebGL Programming Guide: Interactive 3D Graphics Programming with WebGL*, Addison-Wesley, ISBN 9780321902924, 2013.

Invited speaker *WebGL Camp Orlando 2012*.

Invited speaker *Visualizing Biological Data (VIZBI) 2013*.

Invited speaker *BrainHack 2013* (declined).

Invited speaker *IEEE Vis Doctoral Colloquium 2016*.

Invited speaker *Janelia EM Connectome Hackathon 2016* (declined).

Invited speaker *Amazon Re:invent 2016* (declined).

Teaching Assistant for *Micro-controller Programming* at the University of Tbilisi, Georgia (Europe), 2008.

Teaching Assistant for *Advanced Micro-controller Programming* course at the University of Bratislava, Slovakia (Europe), 2008.

Teaching Fellow for the *Harvard CS171 Visualization* undergraduate course, Spring 2015.

Technical Assistant for the *Deep Learning mini-course* at the Harvard IACS Compute Fest, January 2016.

Principal Investigator for multiple IRB approved research studies by the Harvard Human Research Protection Program, 2014-2016.

My Erdős Number is 3.