

Andrew L. Beers

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<https://github.com/AndrewBeers>, [Google Scholar](#)

Resume: http://anderff.com/resources/ABeers_CV.pdf

Education

University of Washington, PhD Student in Human Centered Design & Engineering (2019-)
Brown University, Bachelor of Arts in Environmental Studies (2015)

Research

Center for an Informed Public (CIP) - Seattle, WA, Research Assistant (2020-)

- Led a qualitative research project using grounded theory on a Twitter dataset related to COVID-19 health misinformation.
- Created visualizations, wrote blog posts, and conducted analyses on datasets of 1B+ social media posts for the Election Integrity Partnership, which aims to deter misinformation on voting in the 2020 election.

Quantitative Tumor Imaging Lab, Center for Machine Learning @ the MGH/HST Martinos Center for Biomedical Imaging - Boston, MA, Research Assistant (2016-2017), Programmer (2017-19)

- Design deep learning models for 3D image segmentation, synthesis, classification, regression, denoising, sequence generation, and superresolution of medical imaging data using Tensorflow and Keras.
- Develop open-source software packages (DeepNeuro, 3D Slicer) for both clinical and academic users.
- Create in-house machine learning pipelines for diagnosis, prognosis, and treatment planning for brain tumors. Facilitate the usage of this pipeline by clinicians testing new treatments in ongoing clinical trials.
- Design curricula and give lectures for machine learning classes at MIT and the Martinos Center.

MedGIFT, University of Applied Science in Western Switzerland (HES-SO) - Sierre, Switzerland, Summer Intern (Summer 2018)

- Developed algorithms to generate high-resolution synthetic pathology images for prostate cancer data as part of a summer exchange program with our lab in MGH.

Cedar Creek Ecosystem Science Reserve, NSF Long-Term Ecological Research Site - East Bethel, MN, Research Intern (2015)

- Formalized and enacted a protocol for surveying diseased trees in Cedar Creek's forests, in support of a larger project on oak wilt epidemiology.

Brown University Center for Environmental Studies

Providence, RI, Research Assistant (2014-15)

- Made a website to visualize 134 years of iceberg data using Javascript, and d3.js. Modeled iceberg observer behavior to determine unrecorded changes in observers in the historical record.

American Civil Liberties Union

Boston, MA, Researcher (2014)

- Contributed to a rebuttal for an expert witness in an upcoming state-level reproductive justice case, and critiqued statistical methods in the opposition's supporting epidemiological literature.

Professional Employment

American Civil Liberties Union

New York, NY, Online Production Assistant (2015-16)

- Ran statistical analysis on the ACLU's email fundraising campaign, and coded responsive donation pages.

Ceres

Boston, MA, Insurance Intern (2014)

- Created a tool with VBA and Bloomberg to track eco-friendly "green bonds" in the global market.

Planned Parenthood Federation of America

Washington, DC, Digital Fundraising Intern (2013)

- Created a tool in R to evaluate and rank the effectiveness of PPFA's national fundraising campaigns.

TIC

Washington, DC, Programming Counselor (Summers 2011/2012)

- Created and taught a programming curriculum using LOGO for game creation aimed at children aged 6-14.

Journal Publications

Chang, K., **Beers, A. (first co-author)**, L., Bai, H. X., Brown, J. M., Ly, K. I., Li, X., Senders, J. T., Kavouridis, V. K., Boaro, A., Su, C., Bi, W. L., Rapalino, O., Liao, W., Shen, Q., Zhou, H., Xiao, B., Wang, Y., Zhang, P. J., Pinho, M. C., ... Kalpathy-Cramer, J. (2019). **Automatic assessment of glioma burden: A deep learning algorithm for fully automated volumetric and bidimensional measurement.** *Neuro-Oncology*, 21(11), 1412–1422. <https://doi.org/10.1093/neuonc/noz106>

Gerstner, E. R., Emblem, K. E., Chang, K., Vakulenko-Lagun, B., Yen, Y.-F., **Beers, A. L.**, Dietrich, J., Plotkin, S. R., Catana, C., Hooker, J. M., Duda, D. G., Rosen, B., Kalpathy-Cramer, J., Jain, R. K., & Batchelor, T. (2020). **Bevacizumab Reduces Permeability and Concurrent Temozolomide Delivery in a Subset of Patients with Recurrent Glioblastoma.** *Clinical Cancer Research*, 26(1), 206–212. <https://doi.org/10.1158/1078-0432.CCR-19-1739>

Brown, J. M., Campbell, J. P., **Beers, A.**, Chang, K., Ostmo, S., Chan, R. V. P., Dy, J., Erdogmus, D., Ioannidis, S., Kalpathy-Cramer, J., & Chiang, M. F. (2018). **Automated Diagnosis of Plus Disease in Retinopathy of Prematurity Using Deep Convolutional Neural Networks.** *JAMA Ophthalmology*, 136(7), 803–810.

Balagurunathan, Y., **Beers, A.**, Kalpathy-Cramer, J., McNitt-Gray, M., Hadjiiski, L., Zhao, B., Zhu, J., Yang, H., Yip, S. S. F., Aerts, H. J. W. L., Napel, S., Cherezov, D., Cha, K., Chan, H.-P., Flores, C., Garcia, A., Gillies, R., & Goldgof, D. (2018). **Semi-automated pulmonary nodule interval segmentation using the NLST data.** *Medical Physics*, 45(3), 1093–1107. <https://doi.org/10.1002/mp.12766>

Chang, K., Balachandar, N., Lam, C., Yi, D., Brown, J., **Beers, A.**, Rosen, B., Rubin, D. L., & Kalpathy-Cramer, J. (2018). **Distributed deep learning networks among institutions for medical imaging.** *Journal of the American Medical Informatics Association*, 25(8), 945–954. <https://doi.org/10.1093/jamia/ocy017>

Chang, K., Bai, H. X., Zhou, H., Su, C., Bi, W. L., Agbodza, E., Kavouridis, V. K., Senders, J. T., Boaro, A., **Beers, A.**, Zhang, B., Capellini, A., Liao, W., Shen, Q., Li, X., Xiao, B., Cryan, J., Ramkissoon, S., Ramkissoon, L., ... Kalpathy-Cramer, J. (2018). **Residual Convolutional Neural Network for the Determination of IDH Status in Low- and High-Grade Gliomas from MR Imaging.** *Clinical Cancer Research*, 24(5), 1073–1081. <https://doi.org/10.1158/1078-0432.CCR-17-2236>

Cooperative, J. H. and N. R.-M. D. (2017). **A Multi-Institutional Comparison of Dynamic Contrast-Enhanced Magnetic Resonance Imaging Parameter Calculations.** *Scientific Reports*, 7. <https://doi.org/10.1038/s41598-017-11554-w>

Conference Papers

Beers, A., Haughey, M. M., Arif, A., & Starbird, K. (2020). Examining the digital toolsets of journalists reporting on disinformation. *Computation + Journalism*. <https://cj2020.northeastern.edu/research-papers/>

Beers, A., Chang, K., Brown, J., Gerstner, E., Rosen, B., & Kalpathy-Cramer, J. (2018). **Sequential neural networks for biologically informed glioma segmentation.** *Medical Imaging 2018: Image Processing*, 10574, 1057433. <https://doi.org/10.1117/12.2293941>

Beers, A., Chang, K., Brown, J., Zhu, X., Sengupta, D., Willke, T. L., Gerstner, E., Rosen, B., & Kalpathy-Cramer, J. (2018). **Anatomical DCE-MRI phantoms generated from glioma patient data.** *Medical Imaging 2018: Physics of Medical Imaging*, 10573, 105732V. <https://doi.org/10.1117/12.2294961>

Beers, A., Yen, Y.-F., Emblem, K. E., Gerstner, E. R., Rosen, B., & Kalpathy-Cramer, J. (2017, April 22). **Repeatability of ktrans derived from DCE-MRI in newly diagnosed glioblastoma across multiple baseline images and processing methods.** *ISMRM*. <http://archive.ismrm.org/2017/4172.html>

Cid, Y. D., Mamonov, A., Beers, A., Thomas, A., Kovalev, V., Kalpathy-Cramer, J., & Müller, H. (2017). **Making sense of large data sets without annotations: Analyzing age-related correlations from lung CT scans**. Medical Imaging 2017: Imaging Informatics for Healthcare, Research, and Applications, 10138, 1013809. <https://doi.org/10.1117/12.2255609>

arXiv

Beers, A., Brown, J., Chang, K., Hoebel, K., Gerstner, E., Rosen, B., & Kalpathy-Cramer, J. (2018). **DeepNeuro: An open-source deep learning toolbox for neuroimaging**. ArXiv:1808.04589 [Cs]. <http://arxiv.org/abs/1808.04589>. *Accepted pending minor revisions at Neuroinformatics*.

Beers, A., Brown, J., Chang, K., Campbell, J. P., Ostmo, S., Chiang, M. F., & Kalpathy-Cramer, J. (2018). High-resolution medical image synthesis using progressively grown generative adversarial networks. ArXiv:1805.03144 [Cs]. <http://arxiv.org/abs/1805.03144>

Book Chapters

Resources and Datasets for Radiomics. Ken Chang, **Andrew Beers**, James Brown, Jayashree Kalpathy-Cramer. Radiomics and Radiogenomics: Technical Basis and Clinical Applications (2019).

Speaking

IEEE International Symposium on Biomedical Imaging 2018 – Session Chair, “Lung Nodule Malignancy Prediction Based on Sequential CT Scans”. Gave two talks, one explicating our previous work on multi-interval lung nodule segmentation, and one reviewing the results of a competition on lung nodule segmentation.

BrainHack Boston 2018 – Talk, “Deep Learning @ BrainHack”. Reviewed advances in deep learning in neuroscience.

Diplomacy on the Rocks 2015 - Talk, related to thesis work on iceberg sightings on the North Atlantic.

Teaching

Introduction to Deep Learning and Medical Imaging – Two series of classes teaching deep learning with Python as applied to medical imaging. The first iteration was aimed towards .NET programmers at MGH, and the second towards more experienced Python programmers among the clinicians, professors, and researchers of MGH and Harvard Medical School. Some class lectures found at <https://bit.ly/2xTXDXd>. (2018-2019).

Guest Lecture, MIT Winter Session – Gave a pair of lectures on feature extraction and computer vision in an MIT winter class. (2018).

Service

Reviewer, *Medical Physics* (2019).

Open-Source Software

The Russian Ad Explorer & Datasets - <https://github.com/russian-ad-explorer/russian-ad-datasets>

- An online visualization and preprocessed datasets of malicious political Facebook and Instagram ads purchased by the Russian Internet Research Agency (IRA).

DeepZine - <https://github.com/AndrewBeers/DeepZine>

- A digital art project using generative adversarial networks (GANs) to create synthetic book pages.

DeepNeuro - <https://github.com/QTIM-Lab/DeepNeuro>

- Open-source deep learning Python package for medical imaging. DeepNeuro is an open-source, extensible framework for all of QTIM Lab’s deep learning projects.

Segmentation Wizard (3D Slicer) - <https://github.com/OTIM-Lab/SlicerSegmentationWizard>

- I contribute a module to 3D-Slicer, an open-source platform for medical imaging software. Includes tools for drawing tumor annotations via intensity thresholding via differences between treatment time points. Used for clinical studies at MGH before being supplanted by DeepNeuro. Sole creator.

Awards

Honorable Mention - 2020, National Science Foundation Graduate Research Fellowship Program

Best Research Project - 2015 Institute at Brown for Environment and Society.

- Awarded for work on the Grand Banks Iceberg Mapper.

Library Innovation Prize - 2015, Brown University

- Awarded for work on the Grand Banks Iceberg Mapper.

Magna Cum Laude - 2015, Brown University

Explore Grant - 2013 Social Innovation Initiative (SII) at Brown University.

- Awarded for work on the Empathy Box with Design for America.

Press

"AI Beats Experts At Diagnosing Childhood Disease"

- <https://www.opb.org/news/article/artificial-intelligence-ai-childhood-eye-disease/>

"A story in time: Icebergs & Climate Change": Rhode Island NSF Epscor

- <http://web.uri.edu/rinsfepscor/2015/06/15/a-story-in-time-icebergs-climate-change/>.

"At Loyola HS: 'Empathy boxes' to raise awareness of autism": Angelus News

- <https://angelusnews.com/content/at-loyola-hs-empathy-boxes-to-raise-awareness-of-autism>

Advocacy

Bluestockings Magazine – Art Director (2014-15), Designer (2013-14)

- Designed three 100-page print issues, illustrated 1-3 articles per week, and managed a staff of 10 illustrators for the feminist magazine's website, which reached 10,000+ hits on featured pieces.

Brown/RISD Design for America Chapter – Project Lead (2013-14), Project Member (2012-13)

- Developed the Empathy Box Project, which sought to spread the stories of those with autism via stories shared on social media. Applied for and won grant funding (\$1400+).

Brown University Social Action Housing Group – President (2013-14), Head of Publicity (2012-13)

- Organized events and interviewed prospective members in a 45-person residential housing group for those doing social justice work.

The Brown Conversation - Facilitator (2011-2015)

- Facilitated public discussions about the meaning of an undergraduate education, alternate models for Brown's curriculum, equality in education, and ways to guide one's own educational experience.