Andrew L. Beers

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https://github.com/AndrewBeers, Google Scholar

Education

University of Washington, PhD Candidate 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-)

- 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.
- Leading a qualitative research project using grounded theory on a Twitter dataset of COVID19 misinformation, and an additional project on voting misinformation 'superspreaders.'

Shorenstein Center, **Harvard Kennedy School** - Boston, MA, Researcher (2023)

- Led a project on deceptive citation in legal arguments relating to recent anti-transgender healthcare legislation in the United States. Publication under preparation.

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)

- Designed deep learning models for 3D image segmentation, synthesis, classification, regression, denoising, and superresolution of medical imaging data using Tensorflow and Keras.
- Developed open-source software packages (DeepNeuro, 3D Slicer) for both clinical and academic users.
- Created 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.
- Designed 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

Beers, A., Nguyên, S., Starbird, K., West, J. D., & Spiro, E. S. (2023). **Selective and deceptive citation in the construction of dueling consensuses.** Under Revision.

Beers A., Wilson T., & Starbird K. **The Demographics of a Foreign Influence Operation Targeted at the United States.** (2022). Journal of Online Trust & Safety.

Wack, M., Schafer, J. S., Kennedy, I., **Beers, A.**, Spiro, E. S., & Starbird, K. **Legislating Uncertainty: Election Policies and the Amplification of Misinformation in the 2020 U.S. Election**. (Under Review).

Kennedy, I., Wack, M.,Schafer J. S., **Beers A.**, Spiro E. S., & Starbird K. **Repeat Spreaders and Election Delegitimization: A Comprehensive Dataset of Misinformation Tweets from the 2020 U.S. Election**. (2022). Journal of Quantitative Description.

Bak-Coleman, J., Kennedy, I., Wack, M., **Beers A.**, Schafer J. S., Spiro, E. S., Starbird, K., & West, J. (2022). **Combining interventions to reduce the spread of viral misinformation.** Nature Human Behavior. Minor Revisions.

Beers, A., Brown, J., Chang, K., Hoebel, K., Patel, J., Ly, K. I., Tolaney, S. M., Brastianos, P., Rosen, B., Gerstner, E. R., & Kalpathy-Cramer, J. (2020). **DeepNeuro: An open-source deep learning toolbox for neuroimaging**. Neuroinformatics. https://doi.org/10.1007/s12021-020-09477-5

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 + Workshop Papers

"Negative" Influencers in Social Networks: From Targeted Harassment to Controversy Cultivation. International Network for Social Network Analysis (Sunbelt). Portland, Oregon. (Summer 2023).

Two Years of Influence: Tracking Changes in Twitter Influencer Diets in United States Politics. 9th International Conference on Computational Social Science (IC2S2). Copenhagen, Denmark. (Summer 2023).

Beers, A., Schafer, J. S., Kennedy, I., Wack, M., Spiro, E.S., and Starbird, K. **"Followback Clusters, Satellite Audiences, and Bridge Nodes: Coengagement Networks for the 2020 US Election."** (2023)**.** International Conference on Weblogs and Social Media (ICWSM '23).

Beers A., Kennedy, I., Wack, M., Schafer J. S., Spiro E. S., & Starbird K. **"Repeat Offenders: Frequent and Influential Misinformation Sources During the 2020 United States Election."** (2022). International Studies Association (ISA).

Beers, A., Nguyễn, S., Spiro, E. S. & Starbird, K. **Rejecting Science With Science: Boundary-Work in Anti-Mask Twitter Reply Threads During COVID-19.** (2021). AoIR Selected Papers of Internet Research. https://journals.uic.edu/ojs/index.php/spir/article/view/12143/10269

Beers, A., Nguyễn, S., Sioson, M., Mayanja, M., Ionescu, M., Spiro, E. S. & Starbird, K**., The Firestarting Troll, and Designing for Abusability.** (2021). 15th International Conference on Web and Social Media (ICWSM). Workshop on Information Credibility and Alternate Realities. https://zivepstein.github.io/info-credibility-workshop/papers/FirestartingTroll.pdf

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

Other Written Work

Center for an Informed Public, Digital Forensic Research Lab, Graphika, & Stanford Internet Observatory**.** (2021). **The Long Fuse: Misinformation and the 2020 Election.** https://purl.stanford.edu/tr171zs006

Beers, A. et al. (2020, first author, not credited due to security concerns). "**Repeat Offenders: Voting Misinformation on Twitter in the 2020 United States Election**." Election Integrity Partnership. https://www.eipartnership.net/rapid-response/repeat-offenders

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

A year of influence: tracing narrative transmission between US political influencer communities. Measuring Belief Systems Workshop. Princeton. (Fall 2022).

Capitol Coup One Year Later. Panelist. George Washington University and UNC-Chapel Hill (Winter 2022).

"Flexible Networks: How What You Measure Changes What You See." Workshop on Understanding Misinformation and Disinformation at Tufts T-TRIPOD Institute (Fall 2021).

"Communicating and Miscommunicating Network Graphs: A Case Study." Networked Justice Satellite, Networks Conference (Summer 2021).

'State of Our Vote,' City Club of Portland (Spring 2021) – Part of a panel with Shemia Fagan, Oregon Secretary of State, and Paul Gronke, professor of Political Science at Reed College.

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

Designing Trustworthy Information Systems (Fall 2021) – Teaching assistant with Dr. Kate Starbird. Facilitated discussions for a 20+ person seminar, graded weekly responses and essays for a class focuses on mis- and disinformation on the internet.

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*

Reviewer, *ACM Conference on Human Factors in Computing Systems (CHI)*

Reviewer, *Computer Supported Collaborative Work (CSCW).* 1 Special Recognition for Outstanding Review.

Reviewer, *International Conference on Weblogs and Social Media. (ICWSM)*

Reviewer, *Nature Scientific Reports*

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/QTIM-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

- Behind the Tweet That Became the Rallying Cry for the Insurrection. **Mother Jones.**
- A report sheds light on how Jan. 6 happened—And how to avoid a repeat. **Washington Post.**
- Trump Isn't the Only One**. The New York Times.**
- Fixing What the Internet Broke**. The New York Times.**
- Tracking QAnon: How Trump turned conspiracy-theory research upside down**. Nature News**
- "AI Beats Experts At Diagnosing Childhood Disease." **Oregon Public Broadcasting**
- "A story in time: Icebergs & Climate Change." **Rhode Island NSF Epscor**
- "At Loyola HS: 'Empathy boxes' to raise awareness of autism." **Angelus News**