

Sebastian Gehrman

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Education

- 2015–Oct, 2019 **Ph.D. Candidate, Computer Science**,
Harvard Paul A. Johnson School of Engineering and Applied Sciences.
Advisors: Barbara Grosz, Alexander (Sasha) Rush.
Throughout my graduate research, I am developing collaborative interfaces that are powered by controllable and interpretable text generation models.
- 2018 **S.M. Computer Science**, *Harvard Paul A. Johnson School of Engineering and Applied Sciences*, GPA: 3.9.
- 2015 **B.Sc. Computer Science and Business Administration**, *Nordakademie University of Applied Sciences*, Elmshorn, Germany.
- 2013 **Visiting Undergraduate Student**, *Harvard University*.

Work Experience

- Summer 2018, 2019 **Document Systems and NLP Research Intern**, *Adobe*, San Jose, CA.
Supervised by Franck Dernoncourt, I studied how generated text can help humans understand and share information in long documents.
- Fall 2018 **Graduate Research Intern**, *IBM Research*, Cambridge, MA.
In collaboration with Hendrik Strobelt, I worked on interactive inference for text generation models and analysis tools for controllable generation of protein sequences.
- Summer 2016 **Collaborator**, *Fondazione Bruno Kessler*, Trento, Italy.
Supervised by Massimo Zancanaro and Oliviero Stock, I developed an automatic facilitator to support teenagers with conflicting backgrounds to create shared narratives. We evaluated this facilitator in a human-subject study between Arabic and Israeli native speakers.
- 2014–2017 **Co-Founder**, *Digital Natives*, Frankfurt, Germany.
I was the technical leader of a small media agency that developed web sites, improved SEO and handled social media for small and medium sized businesses. Notable clients include Girardet Verlag and No-Stop Consulting.
- 2011–2015 **Dual Student**, *Eppendorf AG*, Hamburg, Germany.
To finance my undergraduate studies, I had a full time position in cooperation with Nordakademie University of Applied Sciences. My responsibilities included the project management for a new customer relationship management system. Among other tasks I led training sessions for service technicians across Europe and designed algorithms for prioritizing service tickets and deploying technicians.

Conference Publications

- 2019 **Visual Interaction with Deep Learning Models through Collaborative Semantic Inference**, *S Gehrmann**, *H Strobelt**, *R Krüger*, *HP Pfister*, *A Rush*.
Conditionally Accepted at VAST 2019
- 2019 **Evaluating an Automated Mediator for Joint Narratives in a Conflict Situation**, *M Zancanaro*, *O Stock*, *G Schiavo*, *A Cappelletti*, *S Gehrmann*, *D Canetti*, *O Shaked*, *S Fachter*, *R Yifat*, *R Mimran*, *T Weiss*.
Accepted in Behaviour & Information Technology
- 2019 **GLTR: Statistical Detection of Fake Text**, *S Gehrmann*, *H Strobelt*, *A Rush*.
ACL Demos 2019
- 2019 **Improving Human Text Comprehension through Semi-Markov CRF-based Neural Section Title Generation**, *S Gehrmann*, *S Layne*, *F Dernoncourt*.
NAACL 2019
- 2018 **Seq2Seq-Vis: A Visual Debugging Tool for Sequence-to-Sequence Models**, *H Strobelt**, *S Gehrmann**, *M Behrisch*, *A Perer*, *HP Pfister*, *A Rush*.
VAST 2018, **Honorable Mention**
- 2018 **Bottom-Up Abstractive Summarization**, *S Gehrmann*, *Y Deng*, *A Rush*.
EMNLP 2018
- 2018 **End-to-End Content and Plan Selection for Natural Language Generation**, *S Gehrmann*, *F Dai*, *H Elder*, *A Rush*.
INLG 2018
- 2018 **Towards Controllable Generation of Diverse Natural Language**, *H Elder*, *S Gehrmann*, *A O'Connor*, *Q Liu*.
INLG 2018 - E2E NLG challenge special session
- 2018 **Comparing Rule-Based and Deep Learning Models for Patient Phenotyping**, *S Gehrmann*, *F Dernoncourt*, *Y Li*, *E Carlson*, *J Wu*, *J Welt*, *J Foote*, *E Moseley*, *D Grant*, *P Tyler*, *L Celi*.
PloS One 13 (2)
- 2017 **Behind the Scenes: A Medical Natural Language Processing Project**, *J Wu*, *F Dernoncourt*, *S Gehrmann*, *P Tyler*, *E Moseley*, *E Carlson*, *D Grant*, *Y Li*, *J Welt*, *L Celi*.
International Journal of Medical Informatics
- 2016 **Visual Analysis of Hidden State Dynamics in Recurrent Neural Networks**, *H Strobelt*, *S Gehrmann*, *HP Pfister*, *A Rush*.
IEEE Transactions on Visualization and Computer Graphics 2017
- 2015 **Deploying AI Methods to Support Collaborative Writing: a Preliminary Investigation**, *S Gehrmann*, *L Urke*, *O Amir*, *B Grosz*.
CHI 2015, Extended Abstracts on Human Factors in Computing Systems

Workshop Publications

- 2019 **Interactive White-Box Models through Collaborative Semantic Inference**, *S Gehrmann**, *H Strobel**, *R Krüger*, *HP Pfister*, *A Rush*.
ACL 2019 Workshop on BlackboxNLP
- 2019 **LSTMs can perform Dynamic Counting**, *M Suzgun*, *S Gehrmann*, *Y Belinkov*, *S Shieber*.
ACL 2019 Workshop on Deep Learning and Formal Languages
- 2019 **Interactive Visual Exploration of Latent Space (IVELS) for peptide auto-encoder model selection**, *T Sercu*, *S Gehrmann*, *H Strobel*, *P Das*, *I Padhi*, *C Dos Santos*, *K Wadhawan*, *V Chenthamarakshan*.
ICLR 2019 Workshop on Deep Generative Models for Highly Structured Data
- 2018 **Bottom-Up Abstractive Summarization**, *S Gehrmann*, *Y Deng*, *A Rush*.
Poster at Amazon Graduate Student Symposium 2019
- 2018 **Debugging Sequence-to-Sequence with Seq2Seq-Vis**, *H Strobel**, *S Gehrmann**, *M Behrisch*, *A Perer*, *HP Pfister*, *A Rush*.
EMNLP 2018 Workshop on BlackboxNLP
- 2018 **End-to-End Content and Plan Selection for Natural Language Generation**, *S Gehrmann*, *F Dai*, *H Elder*, *A Rush*.
OpenNMT Workshop 2018

Awards and Scholarships

- 2019 One of ten recipients of the Adobe Research Fellowship (selected from over 1,000 applicants)
- 2019 2 × Adobe Research Gift for Harvard NLP (\$5,000 each)
- 2019 Best automated scores at the TL;DR challenge out of 12 submitted systems
- 2018 Harvard Open-Access Publishing Equity (HOPE) award (\$1,500)
- 2017 Best automated scores at the E2E NLG challenge out of 60 submitted systems
- 2016/17 Karina A. Chen Graduate Student Research Fellowship in Engineering and Applied Sciences, Harvard University
- 2013/14 Award for outstanding service to the community of Nordakademie
- 2006–2010 First place in state championship in chess (first board in team of eight)
- 2008 Runner up in Mathematics Olympiad on state level
- 2006, 2007, 2009 Third place in Mathematics Olympiad on state level

Teaching

- Fall 2017 **CS182: Artificial Intelligence**, *Teaching Fellow*, Harvard SEAS.
- Fall 2016 **CS108: Intelligent Systems: Design and Ethical Challenges**, *Teaching Fellow*, Harvard SEAS.

- Fall 2018 **HST.953: Collaborative Data Science in Medicine**, *Mentor*, MIT, Cambridge, MA.
- 2015 & 2016 **Data Analysis with Python**, *Instructor*, Nordakademie University of Applied Science, Elmshorn, Germany.
- 2013 & 2014 **Introduction to Finance**, *Instructor, Organizer*, Nordakademie University of Applied Science, Elmshorn, Germany.

Leadership

- 2019 **International Natural Language Generation Conference**, *Tokio, Japan*.
I am co-organizing the INLG Conference and am acting as publicity chair.
- 2016–2019 **Computer Science Graduate Council**, *Harvard University*.
President, Leading the communication of students with department administrators and planning of biweekly social events for over 100 students and faculty
- 2012–2015 **Naktienclub**, *Nordakademie University of Applied Sciences*.
President, educating students about personal finance and investing through lecture series, managing director of the club's own investment fund of over \$10,000

Technical Skills

- Programming I mostly program in Python, but also have extensive experience with Java. For web development, I use Javascript with react frontend. I am comfortable with bash scripting in Unix environments and have some experience with C.
- Machine Learning I have been using PyTorch since its inception and Lua/Torch before. I wrote many of the features in OpenNMT-py and actively use the allenNLP framework for other modeling tasks. For smaller and applied projects, I use sklearn or Tensorflow/Keras.
- Data Analysis My data analysis pipeline primarily uses Pandas, with matplotlib and seaborn extension for the visualizations. I have experience using R for statistical modeling.

Open Source

- OpenNMT-py Top 5 contributor of one of the largest sequence-to-sequence modeling toolkits
- Bottom-Up Main author of models for state-of-the-art summarization modeling
- GLTR Backend author for the tool to detect generated text from language models
- LSTMVis Backend author for visual analysis of hidden states in recurrent neural networks
- Seq2Seq-Vis Backend author for interactive debugging of sequence-to-sequence models

Reviewing and Program Committees

- Conferences ACL 2018, 2019, CoNLL 2019, EMNLP 2019, IEEE VIS 2019, NAACL 2019, INLG 2018, IUI 2018, 2019
- Workshops VisXAI 2018, NeuralGen 2019, New Frontiers in Summarization 2019
- Journals IJMI, JMIR, JMLR, PLoS One
(I no longer review for paid and non-open access journals)