Akshita Bhagia

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Natural Language Processing, Machine Learning, Deep Learning

Education

- **University of Massachusetts, Amherst** — Amherst, MA
  Master of Science in Computer Science; GPA: 4.00/4.00 — *Sep 2018 – May 2020*

- **Dhirubhai Ambani Institute of Information and Communication Technology** — Gandhinagar, India
  Bachelor of Technology in Information and Communication Technology; GPA: 8.95/10 — *Jul 2011 – May 2015*

Relevant courses

Machine Learning, Neural Networks, Deep Learning for NLP, Systems for Data Science, Advanced Algorithms

Experience

- **Allen Institute for Artificial Intelligence (AI2)** — Seattle, WA
  Senior Research Engineer — *Jul 2021 - Present*
  Research Engineer 2 — *Jul 2020 - Jun 2021*
  - Participating in academic R&D and building open-source software libraries for natural language processing (NLP).

- **Cerebellum Capital** — San Francisco, CA
  Machine Learning Intern — *May 2019 - Aug 2019*
  - Adapted state-of-the-art deep learning models for financial time-series forecasting using Keras and Tensorflow.

- **InFoCusp** — Ahmedabad, India
  Lead Platform Development Engineer — *Feb 2018 - Jun 2018*
  Research Programmer — *Jul 2015 - Jan 2018*
  - Engineered the core infrastructure of a data science platform used for R&D as well as production of financial models.

Publications

- Hamish Ivison, **Akshita Bhagia**, Yizhong Wang, Hannaneh Hajishirzi, and Matthew Peters. *HINT: Hypernetwork Instruction Tuning for Efficient Zero-Shot Generalisation.* arXiv preprint (2022).
- Shruti Palaskar, **Akshita Bhagia**, Yonatan Bisk, Florian Metze, Alan W. Black, and Ana Marasović. *On Advances in Text Generation from Images Beyond Captioning: A Case Study in Self-Rationalization.* Findings of EMNLP (2022).
- Zhaofeng Wu, IV RobertL.Logan, Pete Walsh, **Akshita Bhagia**, Dirk Groeneveld, Sameer Singh, and Iz Beltagy. *Continued Pretraining for Better Zero- and Few-Shot Promptability.* EMNLP (2022).

Selected projects

- **Interpreting detection of style information in neural models** — Jan 20 - May 20
  Advised by: Prof. Mohit Iyyer
  Worked on interpretability of detection of stylistic information by neural models in fictional text.

- **Answering questions about Roman art history** — Sep 19 - Mar 20
  Advised by: Prof. Mohit Iyyer, Prof. Eric Poehler
  Worked on automated dataset construction and interface to explore art and architecture of Pompeii (ancient Roman city) using NLP and CV techniques.

- **Improving crowd-sourced annotations in biomedical text (Scripps Research)** — Jan 19 - May 19
  Advised by: Prof. Andrew McCallum, Dr. Andrew Su (Scripps Research)
  Used Markov chain Monte Carlo methods to improve crowd-sourced annotations for disease and phenotype identification in bio-medical text, by modeling the bias of annotators and true labels of entities, improving NER F1-score by 8 points.

- **Neural Machine Translation using Structural Linguistic Information** Jan 19 - May 19
  Implemented a Transformer model for German-English translation. Achieved an improvement of 1.4 BLEU score by augmenting the transformer with linguistic information (BLEU - 28.8).

Open-Source Software and Datasets

- **allennlp** - https://github.com/allenai/allennlp
  NLP research library, built on PyTorch.
- **ai2-tango** - https://github.com/allenai/tango
  Library to organize your experiments into discrete steps that can be cached and reused throughout the lifetime of your research project.
- **ai2-tailor** - https://github.com/allenai/ai2-tailor
  NLP library for generating perturbations in text with semantic controls.
- **WMT22 African** - https://huggingface.co/datasets/allenai/wmt22_african
  Dataset release for the WMT22 Shared Task.
  Collaboration with Meta AI.
- **No Language Left Behind (NLLB)** - https://huggingface.co/datasets/allenai/nllb
  Dataset release. Mined bitext training data for the NLLB-200 models.
  Collaboration with Meta AI.

Outreach and Service

- **Co-organizer** for the 2022 WMT Shared Task on Large Scale Machine Translation Evaluation for African Languages.
- **Co-organizer** for AllenNLP Hacks 2021 hackathon for minoritized communities.
- **Master's chair** for the graduate chapter of UMass Amherst CSWomen (Feb 2019 - May 2020); handled monthly travel grants. The organization was awarded a Women for UMass grant towards travel expenses for graduate students.
- **Grader** for Programming with Data Structures (Fall 2018), Neural Networks (Fall 2019).
- **Student Representative** of the Gender Cell at DA-IICT (2014-2015).

Talks and Panels

- Workshop on the AllenNLP library at AllenNLP Hacks 2021.
- Workshop on Running experiments on Google Colaboratory at AllenNLP Hacks 2021.
- Panelist on the GHC Information Panel at UMass CICS in Spring 2020.

Awards

- Recipient of the AnitaB.org Grace Hopper Conference Scholarship 2019.

Mentoring

- **Sunitha Selvan**, Research Engineering Intern @ AI2 (Summer 2022).
- **Arjun Subramonian**, Research Engineering Intern @ AI2 - **AI2 Intern of the Year** (Summer 2021).
- **Subhodeep Maji**, Research Programmer Intern @ InFoCusp (Spring 2017).