

# Audrey Beard

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[AudreyBeard.com](http://AudreyBeard.com) • [github.com/AudreyBeard](https://github.com/AudreyBeard)

## Education

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**MS in Computer Science** at [Rensselaer Polytechnic Institute](#) in Troy, NY Aug. 2017 - Aug. 2020  
**BS in Electrical Engineering** at [Seattle University](#) in Seattle, WA Sept. 2014 - June. 2017

## Professional Experience

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**Research Assistant** at [Rensselaer Polytechnic Institute](#) in Troy, NY Jan. 2020 - May 2020

- ▷ Developed novel machine learning performance metrics for static and online learning
- ▷ Formalized animal ID challenge: dataset and protocol for semi-supervised open world recognition

**Researcher** at [Rensselaer Polytechnic Institute](#) in Troy, NY Jan. 2020 - May 2020

- ▷ Led team of eight undergrads to develop CS curriculum that incorporates feminist and critical race theory into foundational CS curriculum
- ▷ Collected and analyzed qualitative data to examine negative impacts of traditional pedagogical models on LGBTQ+, POC, and women CS students

**Computer Vision Research Intern** at [The TRASH App](#) in Brooklyn, NY May 2019 - Aug. 2019

- ▷ Developed novel method for action modeling in images and videos by emulating language
- ▷ Produced semantically-significant action embeddings similarly to WordNet for retrieval and recommendation

**Computer Vision Research Intern** at [Kitware](#) in Clifton Park, NY May 2018 - Aug. 2018

- ▷ Implemented deep learning algorithm using PyTorch and other open-source machine learning libraries
- ▷ Adapted the YOLO object detector to improve human annotation error in satellite images

**Software Development Engineer Intern** at [98point6](#) in Seattle, WA June 2017 - Aug. 2017

- ▷ Learned TensorFlow, Keras, and Scikit-Learn to develop image-based skin condition diagnosis tool for small tele-health startup
- ▷ Balanced diagnostic accuracy, usability, and scalability to deliver proof-of-concept and presented work to each PM's, doctors, and executives

**Research Assistant** at [Seattle University](#) in Seattle, WA Sept. 2016 - June 2017

- ▷ Built background segmentation and image classification pipeline for 94% accuracy
- ▷ Published results in the 2017 [IEEE Global Conference on Signal and Information Processing](#)

**Researcher** at [Florida Institute of Technology](#) in Melbourne, FL May 2016 - July 2016

- ▷ Selected for competitive [NSF REU](#) to classify time-domain signals and developed novel feature extraction technique.
- ▷ Published in the 2017 [International work-conference on Time-Series Analysis](#) and selected for the 2017 edition of Springer's [Contributions to Statistics](#)

## Lectures & Talks

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**The Politics of Vision: How computer vision shapes what we see and how we see it** — [Slides](#) Feb. 2020

- ▷ Explained the basics of computer vision research and development practices for undergraduates in STEM
- ▷ Discussed historical and contemporary politics (and political power) of computer vision technology

**Considerations of Computer Vision** — [Slides](#) Dec. 2019

- ▷ Revealed incidences of algorithmic and data bias (with a focus on racism and sexism) for undergrad, MS, and PhD computer science students
- ▷ Suggested modes of discursive engagement to teach students how to critically examine embedded politics in computer vision

## Lectures & Talks, cont'd

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### Actions as Operators: Visual-Semantic Action Modeling — [Slides](#)

Sept. 2019

- ▷ Explained novel method for semantic image and video action modeling, based on linguistic embedding and English language rules
- ▷ Framed discussion with general approaches and applications of action modeling and complicated loss functions in deep learning

## Selected Project Portfolio

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### Vimwiki Link Network — [Knowledgebase visualization tool](#)

Jan. 2019 - Present

- ▷ Automated wiki visualizer transforms text-based ontologies into directed graphs
- ▷ Aids qualitative analysis of ontological structures for research settings

### Datasheets for Datasets template — [Dataset documentation template in L<sup>A</sup>T<sub>E</sub>X](#)

Jan. 2020

- ▷ Easy-to-use and open-source LaTeX template promotes ethical dataset curation and publication
- ▷ Based on [Datasheets for Datasets](#) by Gebru et al.

### NetSounds — [Convolutional neural network sonification instrument](#)

May. 2019 - Present

- ▷ Transforms popular neural network-based object detector into musical instrument
- ▷ Uses custom PyTorch model to support parallelized operations on CPU and GPU to minimize latency

### Tutorials — [Collection of self-published tutorials](#)

Feb. 2018 - Present

- ▷ Free tutorials for technical topics
- ▷ Released under Creative Commons License

### Deep Learning Resources — [Curated resources for new deep learning practitioners](#)

Sept. 2019 - Present

- ▷ Archive of blog posts, tutorials, software docs, and Tweets published by others
- ▷ Geared at new (and seasoned) researchers, developers, artists, and hobbyists

### PlottingTools — [Data visualization tool](#)

Jan. 2019 - Present

- ▷ Wrapper for Matplotlib in Python3 makes it trivial to make simple graphs
- ▷ Well-designed default settings speed up data analysis by providing useful information at intuitive locations

### NetDev — [Deep learning R&D software tool](#)

March 2019 - Present

- ▷ Neural network training framework eliminates excessive boilerplate code
- ▷ Open-source stack provides rich functionality for training, logging, and checkpointing

### Tensorface — [Deep learning R&D software tool](#)

Nov. 2019 - Present

- ▷ Interface for Tensorboard log files exposes obscured data to make processing and storage easier
- ▷ Data structure converter imports metrics and statistics into Python dictionaries and lists

## Skills and Qualifications

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|------------------|--------------------------------|-------------------------|
| ▷ Python         | ▷ Deep learning R&D            | ▷ Conversational French |
| ▷ C/C++          | ▷ Quantitative experimentation | ▷ Project management    |
| ▷ Bash scripting | ▷ Qualitative analysis         | ▷ Public speaking       |
| ▷ Java           | ▷ Curriculum design            | ▷ Technical writing     |
| ▷ SQL            | ▷ Image processing             | ▷ Team leadership       |

## Relevant Coursework

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|------------------------|-------------------------------|------------------------------|
| ▷ Computational Vision | ▷ Distributed Systems         | ▷ Programming Languages      |
| ▷ Machine Learning     | ▷ Algorithm Analysis & Design | ▷ Computer Operating Systems |
| ▷ Parallel Computing   | ▷ Digital Signal Processing   | ▷ Data Structures            |