

# Prachi Rahurkar

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## EDUCATION

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### Oregon State University

Corvallis, OR

Master of Science - Computer Science, GPA: 3.71/4 (*including Fall '20*)

2018–2020

*Coursework: Natural Language Processing, Networks in Computational Biology, Intelligent Agents and Decision-Making, Computer Vision- I and II, Deep Learning, Machine Learning*

### University of Mumbai

Mumbai, India

Bachelor of Engineering - Computer Science, GPA: 8.26/10

2014–2018

*Coursework: Analysis of Algorithms, Data Structures, Artificial Intelligence, Machine Learning, Soft Computing, Data Mining, Databases, Parallel and Distributed Systems, Theoretical Computer Science*

## RESEARCH EXPERIENCE

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### • Question Answering

Sep 2019 – present

*MS Thesis (Advisor: Dr. Prasad Tadepalli)*

*Oregon State University*

- I am working on automating the generation of text adversarial passages and building reading-comprehension question-answering models robust to the adversarial passages.
- Performed categorization of the successful adversarial text attacks that misdirect model predictions, based on the data collected in a user study that I conducted. (Published at NeurIPS workshop)

### • Brain Network Analysis

Sep 2020 – Dec 2020

*Research Project (Advisor: Dr. Stephen Ramsey)*

*Oregon State University*

- Performed structural analysis on human connectome and chimpanzee connectome data.
- Implemented graphical measures such as centralities, motifs, clustering coefficients, max-flow, analysis of unique edges, etc. among others and showcased differences between the two brain networks.

### • NaYaNa for Universal Literacy

Jul 2017 – Apr 2018

*Research Intern (Supervisor: Dr. Nagarjuna G.)*

*Homi Bhabha Center, TIFR*

- Implemented training data generation algorithm given NaYaNa script (of alphabets and numbers)
- Developed a handwritten character recognition system for the script NaYaNa using feature extraction techniques based on character geometry, with the help of stacked neural networks in implementation.

### • NLP for Regional Languages

May 2018 – Aug 2018

*Independent Study (Advisor: Dr. Jayant Gadge)*

*TSEC, Mumbai*

- Implemented English-to-Marathi translation and worked on understanding the effects of back-translations.
- Implemented poetry generation system using SeqGAN and worked on enhancing its architecture.

## PROFESSIONAL EXPERIENCE

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### • Machine Learning Engineer (Part-time)

Aug 2020 - Dec 2020

*Memorial Sloan Kettering Cancer Center*

*New York City, NY*

- RadiologyBERT: Built a radiology language model by unsupervised pretraining on radiology text data extracted from medical CT scan reports and fine-tuned the LMs for downstream tasks.

- **NLP Data Scientist (Intern)** May 2020 - Aug 2020  
Memorial Sloan Kettering Cancer Center New York City, NY
  - Developed complete NLP pipeline from scratch using public Longformer and BERT for classification on medical radiology reports, and scaled it for all metastatic disease tasks, with little training data.
- **Algorithm Engineer - Computer Vision (Intern)** Jun 2019 - Sep 2019  
KLA-Tencor Corp. Milpitas, CA
  - Proposed and implemented novel image quality estimation techniques for wafer images.

## PUBLICATIONS

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- **Prachi Raturkar**, Matt Olson, Prasad Tadepalli  
*Human Adversarial QA: Did the Model Understand the Paragraph?*  
NeurIPS 2020 Workshop on Human And Model in the Loop Evaluation and Training Strategies
- **Prachi Raturkar**, Lior Gazit, Huy Nguyen  
*RadioBERT: Pre-training transformers on radiology reports*  
(Under Submission at NAACL 2021)
- Richard K. Do, Kaelan Lupton, Pamela Causa, Anisha Luthra, Michio Taya, Karen Batch, Huy Nguyen, **Prachi Raturkar\***, Lior Gazit\*, Kevin Nicholas, Christopher J. Fong, Natalie Gangai, Nikolaus Shultz, Farhana Zulkernine, Varadan Sevilimedu, Krishna Juluru, Amber Simpson, Hedvig Hricak  
*Patterns of Metastatic Disease in Cancer Patients Derived from Natural Language Processing of Structured CT Radiology Reports*  
(Under Submission) (\* responsible for NLP and deep learning work)

## AWARDS AND HONORS

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- 1st Prize at the State-level Project Competition **DJ ASCII** (amongst over 909 participants) 2018
- 2nd Prize at the Project Expo of Thadomal Shahani Engineering College (amongst over 300 participants) 2018
- Bronze Medal at State-level Fencing Competition held in Nagpur, MH, India 2012

## TEACHING

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- **Teaching Assistant** at Oregon State University Fall 2020  
Software Engineering (CS 361)
- **Graduate Teaching Assistant** at Oregon State University Winter 2019 - Spring 2020  
Senior Capstone Project (CS 467)

## PROJECTS

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- **Generate Melody for your Poetry** Winter 2019  
Developed a neural model using stacked LSTM networks which takes poetry text as input and generates a suitable melody for it as the output. Implemented in Python (PyTorch)
- **Translate Katakana to English** Fall 2019  
Performed translation of Japanese Katakana to English with the help of phonemes in WFSAs and WFSTs and an extension of the Viterbi algorithm. Implemented in Python.
- **Pattern Studio** Spring 2019  
Built a system that generates floral and geometric design patterns using self-attention GANs, and applies the generated pattern on the garment selected in the image of a user. Implemented in Python (PyTorch)

## SKILLS

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- **Languages:** Python, Java, R, Matlab
- **Libraries:** PyTorch, TensorFlow, Transformers
- **Databases:** SQL, MongoDB
- **Misc.:** Bash, Git, Flask, Node.js

## LANGUAGES

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- **English:** Native/Bilingual
- **Marathi:** Native/Bilingual
- **Hindi:** Fluent/Proficient
- **Sanskrit:** Limited
- **Spanish:** Beginner