# Chintan Shah

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## EXPERIENCE

**Machine Learning Research Intern,** PathAI, Boston, MA — June 2020 - September 2020

- Applying the latest advances in deep learning literature to improve computational pathology image models.
- Researching meta-learning techniques to improve out-of-domain generalization performance for neural networks.

**Machine Learning Research Assistant**, Northeastern University**,** Boston, MA — November 2019 - Present

**Problem:** Locate the source of an epidemic (patient-zero or **P0**) over a network given a single snapshot of the network.

- Led the research of **"model-free"** graph neural network (GNN) architectures to identify P0 and achieved a **100x speed-up in inference time** and **improved accuracy by 20%** in comparison to current state-of-the-art methods.
- Spearheaded research, development, and writing effort. **Submitted paper as first-author to NeurIPS 2020**.
- Poster accepted at NetSCI 2020! Awaiting NeurIPS results.

**Machine Learning Intern**, Apprentice Health (YC 18), Boston, MA — May 2019 - December 2019

- Designed evolutionary algorithms for optimizing doctor schedules to **reduce patient wait-time by over 40%**.
- Developed a deep learning model to learn a **permutation-invariant representation** of the in-clinic state.
- Predicted expected patient wait in real-time and at scale improving **patient satisfaction scores by over 12%**.
- Slashed infrastructure **costs by 30%**, increased hardware **utilization to over 95%**, and **reduced model training time by 70%** by architecting high-throughput, distributed machine learning pipelines using Kubernetes on AWS.

Media.net**,** Mumbai, India

**Senior Software Engineer, Machine Learning** — June 2017 - June 2018

**Led a team of 4 software engineers** in an entrepreneurial environment to pitch, design, develop and then lead to completion product initiatives in the area of algorithmic revenue optimization, ad-text generation, automated campaign creation, time-series forecasting, anomaly detection, and streamlined high-throughput data pipelines.

- Researched and developed time-series forecasting systems for optimizing ad bids to **increase daily profit by 22%**
- Directed effort to architect horizontally-scalable microservices and set up continuous integration pipelines.

**Software Engineer** — June 2015 - June 2018

- **Reduce campaign creation and bidding time by 70%** by designing a novel contextual ad-generation system.
- Spearheaded development of new stream-processing architectures to **slash ingestion time by over 90%**

## EDUCATION

**Northeastern University**, Boston, MA — September 2018 - Present

Master of Science in Computer Science (**GPA: 4.0**) — Expected December 2020

**Related courses:** Algorithms**,** Program Design Paradigms, Machine Learning, NLP, Causality in Machine Learning

**University of Mumbai**, Mumbai, India — June 2015

Bachelor of Engineering in Computer Science with Distinction

## ADDITIONAL PROJECTS

**Causal Reasoning for Reinforcement Learning Agents,** Boston, MA — March 2020 - April 2020

- Demonstrated that any non-causal RL agent will lead to unfair outcomes in the presence of a confounder.

**Deep Semantic Code Search,** Boston, MA — January 2019 - April 2019

**Problem:** Can we use deep learning to model the semantics of retrieving code segments given natural language queries?

- Outperformed benchmark scores by learning a joint embedding space for code and natural language queries.
- Architected deep neural model in **PyTorch** and **Keras** and improved upon the baseline model by 9%.

## TECHNICAL SKILLS

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| **Programming Languages:** | Python, Java, R, Kotlin, C++, C |
| **Libraries:** | PyTorch, Tensorflow, SKLearn, Numpy, Pandas, Matplotlib, Seaborn, Pyro, BNLearn |
| **Other Technologies:** | Docker, Kubernetes, AWS, Redis, Apache Kafka, Hive, Spark, PostgreSQL, MySQL |