

Amlaan Bhoi

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Education

University of Illinois at Chicago

Master of Science in Computer Science; GPA: 3.80/4.0

Thesis Advisor: Xinhua Zhang

Relevant Coursework: Advanced Machine Learning, Applied Artificial Intelligence, AI: Innovation & Entrepreneurship, Data Mining & Text Mining, Introduction to Data Science, Language & Vision, Virtual & Augmented Reality

Chicago, IL

Aug 2017 – May 2019

Amity University

Bachelor of Technology in Computer Science & Engineering; GPA: 8.28/10.0

Relevant Coursework: Analysis and Design of Algorithms, Data Structures using C, Operating Systems, Pattern Recognition

Noida, India

July 2013 – May 2017

Skills

- **Languages:** Python (Advanced), C++ (Advanced), C (Advanced), Java (Intermediate), SQL (Intermediate), Swift (Novice)
- **Libraries/Frameworks:** TensorFlow, PyTorch, Keras, Scikit-Learn, NumPy, Pandas, Spark
- **CV Libraries:** OpenCV, Scikit-Image, PIL, OpenGL
- **DevOps:** GCP, AWS, GitHub, GitLab, Docker

Experience

CCC Information Services, R&D Intern (Computer Vision), Chicago, IL

May 2018 - Present

- **Image Rotation Classification** (Python, TensorFlow)
 - Designed and trained a shallow convolutional neural network to classify rotated images based on 15° increments with a weighted F1-score of 0.99 on a test set of 1M+ images.
- **Automobile View Classification** (Python, TensorFlow)
 - Implemented an expectation maximization algorithm to sample and classify images from unlabeled data (6M+ images) to prepare a clean dataset of 100K images for training.
 - Designed and trained a low-complexity convolutional neural network architecture to classify 20+ views of automobile images resulting in 30% improvement in weighted F1-score.
 - Reduced model complexity and size by 40% by freezing the model, pruning training nodes, and performing post-training quantization.
- **Total Loss or Repairable Classification** (C++, Python, TensorFlow)
 - Trained ensemble of convolutional neural network architectures on 1M+ automobile images to classify vehicles as total loss or repairable resulting in 25% higher weighted F1-score and 60% decrease in model size.
 - Incorporated first notice of loss information using natural language processing to increase weighted F1-score by 10%.

Reliance Communications, Intern, Mumbai, India

May 2016 – July 2016

- **Optimal Node Search** (C++)
 - Implemented Dijkstra's algorithm on 10K+ network nodes to find shortest path for signal propagation resulting in 25% reduction in costs.

OSSCube Solutions, Software Engineer Intern, Noida, India

May 2015 – July 2015

- **Squeek iOS Application** (Objective-C, Xcode)
 - Developed iOS Twitter client using Fabric and REST API to authenticate user, use custom modals, and display a minimal UI to user.

Projects

- **Optical Character Recognition using Conditional Random Fields** (Python, C++, NumPy, TensorFlow)
 - Implemented a CRF in polynomial time complexity to achieve a 84% letter-wise accuracy on UPenn OCR dataset.
 - Wrote parallel implementation of CRF using PETSc and Tao (LBFGS optimizer) to achieve 77.1% letter-wise accuracy.
- **Aspect-based Sentiment Analysis** (Python, NumPy, TensorFlow)
 - Implemented Deep Memory Networks (MemNet) to achieve 78.66% accuracy, 0.69 weighted F1-score on SemEval 2014 dataset.
- **Iris - Speech to Code Converter** (Python, RabbitMQ, ElectronJS, Microsoft Luis)
 - Trained an intent classification model in Microsoft Luis to classify 15+ classes or commands.
 - Implemented a message passing protocol using RabbitMQ to send and receive messages between Microsoft and Google API scripts, ElectronJS application, and Visual Studio Code extension.
- **Lifeguard.io** (Python, Microsoft CNTK, OpenCV)
 - Modified and trained a 3D convolutional neural network using Microsoft CNTK and Azure to create bounding boxes on drowning individuals in swimming pools with a mean IOU score of 0.45.

Additional Experience & Achievements

- Presented poster on *Tiramisu DenseNet Architecture for Precise Segmentation* for Intel AI at **CVPR 2018**.
- Selected as an **Intel AI Student Ambassador** (150 students worldwide) to research, publish, and share work on machine learning and deep learning.
- Won **Best Microsoft Hack** out of 220 teams at **HackHarvard 2017**.
- Placed 16/50 at **Google Games: Campus Edition 2017 – UIC**.
- Won **Best Technical Innovation** award out of 800 students at **Amity University Convocation 2017**.
- Elected as **Vice-Chair** for **ACM Amity Student Chapter** out of 500 students at Amity University based on high-achieving, technically proficient, innovative academic and leadership performance.