Amlaan Bhoi

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Education

University of Illinois at Chicago — Chicago, IL
Master of Science in Computer Science; GPA: 3.80/4.0 — *Aug 2017 – May 2019*
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

Amity University — Noida, India
Bachelor of Technology in Computer Science & Engineering; GPA: 8.28/10.0 — *July 2013 – May 2017*
Relevant Coursework: Analysis and Design of Algorithms, Data Structures using C, Operating Systems, Pattern Recognition

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 *Tiramise 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 a *Vice-Chair* for **ACM Amity Student Chapter** out of 500 students at Amity University based on high-achieving and technically strong undergraduate students.