Harpreet Matharoo

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TECHNICAL SKILLS

Languages: Python, SQL, Java, C/C++, VBA, Octave, Bash Script
Frameworks and Tools: Git, GitHub, Valgrind, OpenMP, MPI, Jira
ML Algorithms: Decision Trees, Boosting, kNN, SVM, ICA, PCA, k-Means, Gaussian Mixture Models, RFE
DL Architectures: CNN, RNN, LSTM, Transformers, CLIP, Deep Q Network
Libraries: HuggingFace, PyTorch, Gym, NumPy, Scikit-Learn, Pandas, Matplotlib, SciPy, PyMDPToolbox, MLRose

EDUCATION

Georgia Institute of Technology, Atlanta, Georgia — Anticipated Grad date: **Dec 2023**
Master of Science in Computer Science - Part-Time Distance Learning — GPA: 4.0 / 4.0
Coursework: Deep Learning, Machine Learning, Reinforcement Learning, Bayesian Statistics, Artificial Intelligence, High-Performance Computing, High-Performance Computing Architecture.

McMaster University, Hamilton, Ontario — **Sep 2013 – May 2016**
Master of Applied Science in Mechanical Engineering — GPA: A(-)
Research Assistant at the Center for Advanced Micro-Electro Fluids

Indian Institute of Technology, Delhi — **Sep 2009 – May 2013**
Bachelor of Technology in Mechanical Engineering — GPA: 7.03/10

EXPERIENCE

CAD Microsolutions Inc., Toronto, ON — **Mar 2019 – Present**
Senior Applications Engineer

- Implemented, troubleshot, and enhanced existing product data management solutions with **SQL** backbone and **VBA** scripting interface generating over $500,000 in annual revenue. Implemented solutions that improved user productivity by over 41%.
- Trained over 350 mechanical engineers/designers on various computer-aided engineering solutions.
- Boosted our online presence by over 1700% by creating technical content highlighting key features of our solution offerings.

Upchain Inc., Toronto, ON — **May 2018 – Feb 2019**
Customer Success Engineer

- Provided technical support, user training, drafted proposals for feature enhancements in **Jira,** and implemented the Upchain product life cycle management system for the early adopters.
- Led product adoption initiatives at manufacturing companies that played a crucial role in the acquisition by a Fortune 500 company (Autodesk).

CAD Microsolutions Inc., Toronto, ON — **Aug 2016 – May 2018**
Applications Engineer

- Provided technical support and user training for computer-aided engineering solutions. Solved the highest number of customer cases(above 700 cases on average) annually amongst a team of 7 support engineers.

Center for Advanced Micro-Electro Fluids, McMaster University, Hamilton, ON — **Sep 2013 – May 2016**
Graduate Research Assistant (under Prof. P. Ravi Selvaganapathy)

- My research focused on developing an artificial placenta for newborns.
- Developed a mathematical model in **Matlab** to predict the device's gas exchange efficiency. The model identified the key parameters affecting the performance and was optimized to achieve higher performance by 125%.

PROJECTS

Lunar Lander | (Skills: **Python, PyTorch, Gym, Deep Q Learning)** — **Feb 2023**

- Implemented **Deep Q Network** from scratch using PyTorch and trained it on LunarLander-V2 environment in OpenAI Gym. Successfully landed the lunar lander with a consistent 200+ score.

Transforming Visual QA Task into Lexical QA Task (Skills: **Python**, **PyTorch, HuggingFace, Transformers**) — **Oct-Dec 2022**

- Transform VQA task into Lexical QA to enable zero-shot transfer. Implemented ML pipeline with **HuggingFace** that generates caption using **Vision Transformer** and **GPT-2** in series. The captions combined with questions and answers are used to model the problem as (a) Extractive QA and (b) Generative QA

AWARDS AND HONORS

- **Graduate and Research Fellowship Worth $ 28,000/yr,** McMaster University — **2013-2016**
- **Vice President, Institute of Mechanical Engineering,** IIT Delhi Chapter — **2012**
- **Ranked 603 out of 400,000 Students,** Joint Entrance Exam for admission to Indian Institutes of Technology — **2009**