SACHIN MUKUL DHARASHIVKAR

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WORK EXPERIENCE:

- **Founder**, IntelLawyer October 2022 - April 2023

  Built a semantic search engine which serves Indian Case Laws.

- **Founder**, AIVetaal December 2021 – September 2022

  Developed a framework to assess student's understanding of course material by generating questions and answers real-time using fine-tuned Large Language Model T5.

- **Associate Software Engineer**, JP Morgan Chase, San Mateo, CA April 2019 – January 2021

  Developed simulator and agents using Reinforcement Learning algorithms for trading large quantities of equity with minimal market impact.

- **Senior Software Engineer**, Samsung Research America, Mountain View, CA October 2018 – March 2019

  Built a content recommendation engine prototype to suggest similar TV shows and movies for Samsung Smart TV audience by constructing document embeddings using BERT.

- **Machine Learning Research Intern**, Unity Technologies, San Francisco, CA June – August 2018

  Worked in collaboration with Unity Labs and ML-Agent Toolkit team to develop an agent playing collaborative multiplayer game. Developed a network to learn action-values estimated by Trial-based Heuristic Tree Search; where state and actions are described in natural language. The feedback of my contribution to the project is here.

- **Software Research Engineer**, Huawei Technologies, Framingham, MA August – December 2017

  Worked on a navigation problem- continuous control task. Explored and Compared performance of Deep Reinforcement Learning methods with Reinforcement Learning methods using learned representations using CNNs and hand-engineered features. Helped the team in designing certain features. Language used : C++

- **Machine Learning – Software Development Intern**, Autodesk, Boston, MA June – August 2017

  Worked with Revit team on the task of generating dimensions for architectural views. Collaborated with Architects, Software Architect and Project Manager to learn about complexity of the task and decompose the task into different sub-tasks. Explored usage of conditional GANs among other techniques. Also curated a natural language dataset from preexisting Revit models of buildings and using it, created categorical embeddings for architectural concepts.

- **Founder/Data Scientist**, DeepAnalytics, Pune, India August 2015 – March 2016

  Collaborated with Latitude group, an e-learning company to create a course on ‘Data Science with Python’. Provided consultancy services to a messenger company for identifying intent of conversations to increase monetization by Ads.

- **Software Engineer/Data Scientist**, Persistent Systems, Pune, India August 2013 – August 2015

  Worked with a team to analyze huge amounts of anonymized mobile phone usage data. Used this analysis to perform feature engineering. Then experimented with several models to predict age band and gender of the users.

EDUCATION:

- **Master of Science in Computer Science**, University of Massachusetts Amherst Sept 2016 – Sept 2018

  Coursework : Machine Learning, Reinforcement Learning, Deep Learning, Advanced Natural Language Processing, Research Methods in Empirical Computer Science, Systems, Advanced Algorithms, Algorithms for Data Science

✗ **Projects** :

  Doom-Agent : Developed a Deep (mapping from Pixels to Actions) Reinforcement Learning Agent, A3C in Torch7 to play on different tasks in the ViZDoom environment (First- person shooter game – Doom).

  Attention Networks for Question Answering : Studied various Attention Network architectures for the task of Reading Comprehension. Then implemented Dynamic Coattention Network and trained on SQuAD dataset.

  Robust Agent : Explored the sensitivity of various Deep Reinforcement Learning agents (DQN, A3C & TRPO) against adversarial attacks generated by Fast Gradient Sign Method(FGSM) and tried to develop defenses against them.

  Policy Gradient Coagent Networks : Implemented and experimented with an actors-critic algorithm, where actors are set of interactive modules with a common critic. This algorithm uses Associate Reward – Penalty.

  Attacks on Bitcoin Blockchain : Performed Monte-Carlo analysis of Selfish Mining attacks using heuristics and reinforcement learning on Bitcoin blockchain. Also performed Monte-Carlo analysis of Doublespend attacks.

- **Bachelors of Engineering in Information Technology**, University of Pune, India September 2009 – May 2013