SACHIN MUKUL DHARASHIVKAR

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WORK EXPERIENCE:

- **Machine Learning Research Intern**, Unity Technologies, San Francisco, CA June – August 2018
  Working in collaboration with Unity Labs and ML-Agent Toolkit team to develop an agent which will play a collaborative multi-player party game. Incrementally created few toy-domain environments and developed models to learn in those environments. Exploring suitable state representation and model architectures for the task.
- **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.
- **Co-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. Also worked on a project to identify emerging patterns in the nature and remedies of complaint tickets generated in a bank with global operations, by analyzing descriptive fields in them using SPSS and R.

EDUCATION:

- **Master of Science in Computer Science**, University of Massachusetts Amherst. August2016– August2018
  Coursework : Machine Learning, Reinforcement Learning, Deep Learning, Advanced Natural Language Processing, Research Methods in Empirical Computer Science, Systems, Advanced Algorithms, Algorithms for Data Science, Secured Distributed Systems, Advanced Information Assurance.
- ✘ **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). Code
  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. Code
  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 has more biological plausibility as it uses Associate Reward – Penalty than Backpropagation algorithm for calculating gradients using local information.
  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.
  Group Chat Application : Designed and Implemented a distributed group chat messaging application using Golang.
  Memory Allocator : Designed and Implemented stack-based Memory Allocator using mmap in Rust.
  DApp for RPS game : Developed a distributed application to play Rock-Paper-Scissor game on Ethereum blockchain.
- **Bachelors of Engineering in Information Technology**, University of Pune, India August2009 – May 2013
  Coursework : Object Oriented Modeling and Design, Theory of Computation, Programming Paradigms

TECHNICAL SKILLS:

- **Primary**: C, C++, Python (Pytorch, Tensorflow), Lua (Torch7)
- **Secondary:** R, Java, Go, Rust, Solidity, SQL, SPSS, Predictive Analytics Library (PAL) in SAP HANA

ACTIVITIES:

- Played lead role in a drama at Annual function of Persistent Systems.
- Represented college in various chess competitions and national competition of ROBOCON2010.