Vihang Patil
Ph.D Student in Reinforcement Learning

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EDUCATION

Johannes Kepler Universität Linz Linz, Austria
Ph.D. student in Reinforcement Learning advised by Prof. Sepp Hochreiter *Sep. 2019 – Ongoing*

Universita Della Svizzera Italiana Lugano, Switzerland
Master of Science in Artificial Intelligence (9.00/10) *2017 – 2019*

ETH Zurich Zurich, Switzerland
Exchange Semester and Master Thesis (9.5/10) *2018 – 2019*

University of Mumbai Mumbai, India
Bachelor of Engineering in Electronics (First Class) *2011 – 2015*

RESEARCH EXPERIENCE

Amazon Seattle, USA
Applied Science Intern - Alexa AI *September 2023 - December 2023*

Amazon Seattle, USA
Applied Science Intern - Alexa AI *January 2022 - May 2022*
- **Reinforcement Learning For Information Retrieval**: Worked at the intersection of Data Structures, Information Retrieval, graph neural networks, and Reinforcement Learning.

Institute for Machine Learning, Johannes Kepler Universität Linz Austria
Research Assistant - Advised by Prof. Sepp Hochreiter *Sep 2019 - Ongoing*

Data Analytics Group, ETH Zurich Zurich, Switzerland
Master Thesis Student - Advised by Dr. Aurelien Lucchi *Oct 2018 - Sep 2019*
- **Reinforcement Learning under Constraints**: Studied various derivative-free methods for reinforcement learning under constraints. Developed a convergent evolutionary algorithm.

Institute for Machine Learning, Johannes Kepler Universität Linz Austria
Visiting Student Researcher - Advised by Prof. Sepp Hochreiter *Jun 2018 - Nov 2018*
- **Credit Assignment in StarCraft-II**: Implemented Reward redistribution for various mini-games in StarCraft-II with delay in reward and long episode length. Designed and trained deep neural network policies using PPO.

University of Mumbai Mumbai, India
Student Researcher - Advised by Prof. Sandeep Mishra *May 2014 - May 2015*
- **Path Planning for Robots**: Implemented various path-planning algorithms in a multi-robot system. The project was selected for ARM design contest and presented at ADCOM, Bangalore, 2014.

TEACHING EXPERIENCE

Deep Reinforcement Learning Austria
Teaching Assistant - Johannes Kepler Universität Linz *2023, 2021, 2020 Summer Semester*

PROFESSIONAL EXPERIENCE

Fractal Analytics Mumbai, India
Associate (Data Science) *Jan 2016 - Jul 2017*
- **Sales Incentive Optimizer**: Assisted a consumer products good major in incentivizing salesman using regression and clustering. Deployed the product to users on R-Shiny dashboard.
- **Customer and Loyalty Analytic's**: Objective was to forecast sales qualified lead for 6 months. Developed an ARIMA time series model for forecasting sales leads and interfaced the model with Hive for forecasting on real time data.
- **Macro-Economic Driver Analysis**: Developed a regression model to assess impact of macroeconomic factors on sales for an African Nation.

Research Papers

- **InfODist: Online distillation with Informative rewards improves generalization**
  Siripurapu, Patil, Schweighofer, Dinu, Schmied, Holzleitner, Eghbal-Zadeh, Kopp, Hochreiter (Deep RL Workshop 2022)

- **Align-RUDDER: Learning From Few Demonstrations**
  V. Patil, M. Hofmarcher, M. Dinu, M. Dorfer, P. Blies, J. Brandstetter, J. Arjona, S. Hochreiter (ICML 2022)

- **History Compression via Language Models in Reinforcement Learning**
  F. Paischer, T. Adler, V. Patil, A. Bitto, S. Lehner, H. Eghbal-Zadeh, S. Hochreiter (ICML 2022)

- **A Globally Convergent Evolutionary Strategy for Stochastic Constrained Optimization**
  V. Patil*, Youssef Diouane*, Aurelien Lucchi* (AISTATS 2022)

- **A Dataset Perspective on Offline Reinforcement Learning**
  K. Schweighofer, A. Radler, M. Dinu, M. Hofmarcher, V. Patil, A. Bitto, H. Zadeh, S. Hochreiter (COLLAS 2022)

- **XAI and Strategy Extraction via Reward Redistribution**
  M. Hofmarcher, M. Dinu, V. Patil, M. Dorfer, P. Blies, J. Brandstetter, J. Arjona, S. Hochreiter (XXAI - Book Chapter)

- **Reactive Exploration to Cope with Non-Stationarity in Lifelong Reinforcement Learning**
  C. Steinparz, T. Schmied, F. Paischer, M. Dinu, V. Patil, A. Bitto, H. Zadeh, S. Hochreiter (COLLAS 2022)

- **Understanding the effect of Dataset Composition on Offline Reinforcement Learning**
  K. Schweighofer, M. Dinu, M. Hofmarcher, A. Bitto, P. Renz, V. Patil, S. Hochreiter (Deep RL workshop Neurips 2021)

- **Modern Hopfield Networks for Return Decomposition for Delayed Rewards**
  M. Widirich, M. Hofmarcher, A. Bitto, V. Patil, S. Hochreiter (Deep RL workshop Neurips 2021)

- **Guided Search for Maximum Entropy Reinforcement Learning**
  V. Patil

Competitions

- **MyoChallenge at Neurips 2022**
  Co-Winners of the MyoChallenge 2022 at Neurips 2022   *Aug 2022 - Nov 2022*

- **Robocon**   Mumbai, India
  Programmer/Team Leader - Advised by Prof. Prashant Upadhyay   *Dec 2013 - Mar 2015*
  - **ABU-ROBOCON competition**: Co-founded the team in 2013 and was programming lead(2013-2014) and Team leader(2015). Designed, built, and programmed robots for tasks ranging from pick and place to playing double Badminton. Led a team of 20 students (2015) and oversaw mechanical, electronics, and software aspects of robot design. Improved rank to 10th from 40+ in the previous years in about 100 contesting teams at Robocon 2015.

Other

- **Reviewing Conferences**
  ***NeuRIPS** (2023, 2022, 2021, 2020), **ICML** (2023, 2022, 2021, 2020), **ICLR (2022, 2021, 2020)**, **AISTATS** (2021)*

Technical Skills

- **Languages**: Python, MATLAB, R, HTML, CSS

- **Frameworks**: Pytorch, Tensorflow, ROS

Scholarships

- **LIT AI Lab PhD Scholarship**
                                                                                              2019 – 2024

- **Tution Fee Waiver Scholarship, Govt. of India**
  Awarded to top 5% of the class.   *2011 – 2015*

Links

- Github, Website, Google Scholar, Twitter