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 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

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
  Visiting Student Researcher - 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.

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.

TEACHING EXPERIENCE

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

REVIEWING

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

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.

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