Sayantan Auddy

PhD Student

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I am a PhD student in the Intelligent and Interactive Systems research group at the University of Innsbruck. My primary research interest is in developing algorithms for lifelong or continual learning, which can be scaled up for use in the real world (e.g. robotics applications). I am interested in deep reinforcement learning and computer vision. I am also interested in exploring and utilizing the strong connection between computer science and neuroscience research. I was born and raised in Kolkata, India. I have completed my bachelor's degree in Computer Science and Engineering in India, and later completed my MSc degree from the University of Hamburg, Germany. In between, I have also worked as a software engineer for a few years. Apart from my work, I enjoy painting, cartooning and origami.

Areas of Interest

- Continual learning for robotics
- Generative models for pseudo-rehearsal in continual learning
- Bayesian neural networks, variational inference, and normalizing flows for continual learning
- Deep reinforcement learning
- Computer vision

Positions

- Since October 2018: PhD student at the Department of Computer Science, Intelligent and

Interactive Systems, University of Innsbruck
- February 2014 - August 2014: Consultant at Capgemini, India
- January 2013 - February 2014: Associate at Cognizant Technology Solutions, India
- December 2009 - December 2012: Senior Systems Engineer at Infosys Limited, India

Education

- January 2018: Master of Science in Intelligent Adaptive Systems from the University of Hamburg, Germany. Passed with distinction. [MSc Thesis]
- August 2009: Bachelor of Technology in Computer Science and Engineering from West Bengal University of Technology, India

Talks and Workshops

- Sep 2020: Presented the paper 'Can Expressive Posterior Approximations Improve Variational Continual Learning?' in the RO-MAN 2020 Workshop on Lifelong Learning for Long-term Human-Robot Interaction.
- Aug 2019: Presented the paper 'Hierarchical Control for Bipedal Locomotion using Central Pattern Generators and Neural Networks' at the 2019 Joint IEEE 9th International Conference on Development and Learning and Epigenetic Robotics (ICDL-EpiRob) in Oslo, Norway.
- July 2019: Contributed a talk 'Progress, Compress and Expand - A framework for lifelong learning of robotics tasks' at the School of Learning, Perception and Robotics (SPROuT), Department of Information Engineering and Computer Science, University of Trento, Italy.
- July 2019: Presented a poster on 'Progress, Compress and Expand: A framework on continual learning of robotics tasks' at the 4th International Workshop on Intrinsically Motivated Open-ended Learning (IMOL 2019) in Frankfurt, Germany.
- September 2016: Presented the paper 'A Robotic Home Assistant with Memory Aid Functionality' by Weiser et al. at the 39th German Conference on Artificial Intelligence (KI2016) in Klagenfurt, Austria.

Publications

- Aug 2019: Hierarchical Control for Bipedal Locomotion using Central Pattern Generators and Neural Networks. Sayantan Auddy, Sven Magg and Stefan Wermter. Proceedings of the 2019 Joint IEEE 9th International Conference on Development and Learning and Epigenetic Robotics (ICDL-EpiRob). Selected for oral presentation. [Paper] [Video]
- September 2016: A Robotic Home Assistant with Memory Aid Functionality. I. Wieser, S. Toprak, A. Grenzing, T. Hinz, S. Auddy [and 14 others]. Proceedings of the 39th German Conference on Artificial Intelligence (KI2016), Volume 9904, pages 102-115.[Paper]

Teaching

- Summer semester 2021: Pro-seminar for the course **Machine Learning**
- Winter semester 2020: Reinforcement learning lectures, and pro-seminar for the course **Advanced Machine Learning**
- Summer semester 2020: Pro-seminar for the course **Machine Learning**
- Winter semester 2019: Pro-seminar for the course **Advanced Machine Learning**
- Winter semester 2019: Reinforcement learning lectures for the course **Advanced Machine Learning**
- Summer semester 2019: Pro-seminar for the course **Data Structures and Algorithms**
- Winter semester 2018: Reinforcement learning lectures for the courses **Introduction to Machine Learning** and **Advanced Machine Learning**

Student Supervision

Ongoing

- Oliver Lintner: B.Sc. thesis - Performance Evaluation of State-of-the-art Reinforcement Learning Algorithms (co-supervision with Erwan Renaudo)

Completed

- Maicol Polvere: M.Sc. thesis - Continual Learning for Robot Grasping (co-supervision with Antonio Rodriguez Sanchez)
- Salvatore Giancani: M.Sc. thesis - A Mirror Neuron-based model for Learning from Demonstration (co-supervision with Jakob Hollenstein and Antonio Rodriguez Sanchez)
- August Weiß: B.Sc. thesis - Temporal Action Segmentation In Videos Using Neural Processes (co-supervision with Antonio Rodriguez Sanchez)