Sthithpragya Gupta

ROBOT LEARNING & CONTROL / LASA, EPFL

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EPFL profile | Google Scholar

Doctoral researcher at the Learning Algorithms and Systems Laboratory (LASA), EPFL, advised by Prof. Aude Billard. Research on learning robot behaviour from demonstration, stable dynamical systems, kinematically grounded cross-robot skill transfer, dexterous manipulation, and language-guided adaptation.

RESEARCH EXPERTISE

Learning from demonstration; dynamical systems; serial-robot kinematics; behaviour adaptation and temporal coordination; dexterous manipulation; task and motion planning; language grounding.

EDUCATION

2021-present
Doctoral Studies in Robotics, Control and Intelligent Systems
École polytechnique fédérale de Lausanne (EPFL), Switzerland.
Doctoral research at LASA under Prof. Aude Billard.

2018-2020
M.S. in Robotics
École Centrale de Nantes, France, and Universitat Jaume I, Spain.

2013-2017
B.Tech. in Mechanical - Production and Industrial Engineering
Indian Institute of Technology Delhi, India.

RESEARCH APPOINTMENTS

2021-present
Doctoral Researcher
Learning Algorithms and Systems Laboratory, EPFL.
Data-efficient behaviour learning, stable control, cross-robot transfer, adaptation and coordination, and language-guided planning.

2020-2021
Research Assistant
Learning Algorithms and Systems Laboratory, EPFL.
Compact reconstruction of high-dimensional robot trajectories from demonstration.

2020
Master's Thesis Intern
Learning Algorithms and Systems Laboratory, EPFL.
Configuration exploration for data-efficient acquisition of robot inverse dynamics.

2017
Research Intern
Advanced Robotics Centre, National University of Singapore.
Design and prototyping of a soft exosuit for back support and a pneumatic-muscle-actuated active knee brace.

Published research

PEER-REVIEWED PUBLICATIONS

Sthithpragya Gupta, Durgesh H. Salunkhe, Aude Billard.
Demonstrate once, execute on many: Kinematic intelligence for cross-robot skill transfer
Science Robotics, 11(113), eaea1995, 2026.
doi: 10.1126/scirobotics.aea1995

Sthithpragya Gupta, A. Nayak, Aude Billard.
Compact One-Shot Modeling of High-Dimensional Demonstrations Using Laplacian Eigenmaps
IEEE Transactions on Robotics, 42, 1468-1484, 2026.
doi: 10.1109/TRO.2026.3666134

Durgesh H. Salunkhe, **Sthithpragya Gupta**, Aude Billard.
Cuspidal Redundant Robots: Classification of Infinitely Many IKS of Special Classes of 7R Robots
IEEE Robotics and Automation Letters, 10(12), 12509-12516, 2025.
doi: 10.1109/LRA.2025.3623011

Sthithpragya Gupta, Kunpeng Yao, Loïc Niederhauser, Aude Billard.
Action Contextualization: Adaptive Task Planning and Action Tuning Using Large Language Models
IEEE Robotics and Automation Letters, 9(11), 9407-9414, 2024.
doi: 10.1109/LRA.2024.3460408

F. Khadivar, **Sthithpragya Gupta**, W. Amanhoud, Aude Billard.
Efficient Configuration Exploration in Inverse Dynamics Acquisition of Robotic Manipulators
IEEE International Conference on Robotics and Automation, ICRA 2021, 2021.
doi: 10.1109/ICRA48506.2021.9561587

SELECTED CONTRIBUTIONS

Kinematic Intelligence. Dynamical-system skill formulation, nominal and near-boundary track-cycle policies, learning from multiple demonstrations, and the robot experimental pipeline.

LEMON-DS. First-order latent dynamics, diffeomorphic robot-policy learning, analysis, and experimental evaluation.

Action Contextualization. Symbolic grounding, language-based parameter adaptation, retuning and replanning, analysis, and evaluation.

INTELLECTUAL PROPERTY

Indian Patent No. 405359 (2022). Robotic apparatus/manipulator with two degrees of freedom (RCM point) for carrying out invasive surgery, actuated using capstan drivers. J. P. Khatait and S. Gupta.