Marcel Torne Villasevil

marceltorne.github.io

EDUCATION

Stanford University

Stanford, CA

PhD Student

Sept..'24-Jun. '29 Stanford Artificial Intelligence laboratory (SAIL)

Advisor: Prof. Chelsea Finn

Massachusetts Institute of Technology Cambridge, MA

Master's Thesis and Cross-registered student; GPA 4/4 Aug.'21-May'23 Computer Science and Artificial Intelligence laboratory (CSAIL) Master's Thesis with Prof. Pulkit Agrawal and Prof. Abhishek Gupta at the ImprobableAI lab, MIT CSAIL

Relevant courses: Robotic Manipulation (Prof. Russ Tedrake), Sensorimotor Learning (Prof. Pulkit Agrawal), Advances in Computer Vision (Prof. Philip Isola, Prof. Bill Freeman), Natural Language Processing (Prof. Jacob Andreas, Prof. Yoon Kim)

Harvard University

Cambridge, MA

Master of Engineering in Computational Science and Engineering; GPA: 4.00/4.00 Aug. '21 – May '23

School of Engineering and Applied Sciences (SEAS)

Relevant courses: Statistical Decision Making (Prof. Susan Murphy), Stochastic Method for Data Analysis Inference and Optimization (Dr. Weiwei Pan)

École Polytechnique Fédérale de Lausanne, EPFL

Lausanne, Switzerland

Bachelor of Science in Computer Science; Grade: 5.62/6 (top 3%)

Sept. '18 – July '21

International Baccalaureate (IB Diploma) Reus, Spain

IES Gabriel Ferrater I Soler de Reus; Grade: 42/45 (highest score in the school's history) Sept. '16 - June '18

Relevant courses: Physics HL (Grade 7/7), Mathematics Higher Level (HL) (Grade 6), Catalan Literature HL (Grade 6), Chemistry Standard Level (SL) (Grade 7), English SL (Grade 7), Philosophy SL (Grade 6)

CONFERENCE PUBLICATIONS

Robot Learning with Super-Linear Scaling

Marcel Torne Villasevil,* Arhan Jain*, Jiayi Yuan*, Vidaaranya Macha*, Lars Ankile, Anthony Simeonov, Pulkit Agrawal, Abhishek Gupta

Published at: Robotics: Science and Systems 2025

From Imitation to Refinement - Residual RL for Precise Visual Assembly

Lars Ankile, Anthony Simeonov, Idan Shenfeld, Marcel Torne Villasevil, Pulkit Agrawal

Published at: International Conference of Robot Automation 2025

Reconciling Reality through Simulation: A Real-to-Sim-to-Real Approach for Robust Manipulation

Marcel Torne Villasevil, Anthony Simeonov, Zechu Li, April Chan, Tao Chen, Abhishek Gupta*, Pulkit Agrawal Published at: Robotics: Science and Systems 2024

Breadcrumbs to the Goal: Goal-Conditioned Exploration from Human-in-the-loop feedback

Marcel Torne Villasevil, Max Balsells i Pamies, Zihan Wang, Samedh Desai, Tao Chen, Pulkit Agrawal, Abhishek Gupta Advances in Neural Information Processing (NeurIPS), 2023 /paper/website

Media Converage: MIT New's spotlight

Autonomous Robotic Reinforcement Learning with Asynchronous Human Feedback

Max Balsells I Pamies*, Marcel Torne Villasevil*, Zihan Wang*, Samedh Desai, Pulkit Agrawal, Abhishek Gupta Conference on Robot Learning (CoRL,) 2023 paper / website Media Coverage: <u>TechXplore</u>

* indicates equal contribution/supervision

PRE-PRINTS

Learning Long-Context Robot Policies via Past-Token Prediction Marcel Torne Villasevil,* Andy Tang*, Yuejiang Liu*, Chelsea

Email: marcelto@mit.edu

Mobile: +1(617)-949-0446

Under submission in 2025

OPEN-SOURCE PROJECTS

DISCO: Distributed Collaborative Machine Learning MLO-iGH EPFL. Project started by Marcel Torne Villasevil and Paul Mansat supervised by Professor Martin Jaggi GitHub repository available at github.com/epfml/disco (105 stars on GitHub)/ Bachelor's thesis available here Play with DISCO at: https://epfml.github.io/disco/

WORK EXPERIENCE

Stanford, SAIL, IRIS Lab

Stanford, CA

Graduate Research Assistant, supervised by Prof. Chelsea Feb '22 - Aug.24'

Working on Robot Learning

MIT, CSAIL, Improbable AI Lab Cambridge, MA

Graduate Research Assistant, supervised by Prof. Pulkit Agrawal and Prof Abhishek Gupta Feb '22 - Aug.24' Worked on three main projects:

- Leveraged crowdsourced non-expert human feedback from annotators worldwide to guide exploration
- Developed new algorithm for robot finetuning in the real world using $human\ feedback$
- Leveraged real-to-sim transfer of real scenes for robustifying policies through simulation.

Microsoft

Bellevue, WA

Data Scientist Intern

June '22 – August '22

Microsoft Bing: Built the first implementation of Extreme Classification algorithms by Microsoft Research in the Image ranker of Bing, ranking billions of images in response to text queries.

Amazon

Barcelona, Spain

May '20 – Sept. '20

Software Engineering Intern

Amazon Search, Science and AI: Developed browser plugin tool using Angular JS to help ML engineers debug the Amazon ranking algorithm. Tool used more than 100 times per day by more than 20 ML Amazon engineers.

FOUNDING EXPERIENCE

Quiz.Fit

Lausanne, Switzerland

Co-founder and main developer Developed a mobile application in Swift for improving users' health through gamification of healthy habits.

SELECTED HONORS

Harvard Real Colegio Complutense Scholarship Aug '21-May '23 Merit-based scholarship for Spanish students studying at Harvard. Covered around 70% of the Master's tuition.

Harvard IACS Master Thesis proposal award Aug.'21 - May'23 Award given to a small, selected number of students in the master's program at Harvard for their excellent Master's thesis proposal. Covered around 30% of the second year's master tuition.

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Nova 111 Student List 2022 Spain

May '22

Selected as one of the top 11 best students from Spain in Computer Science aged between 18-25

Excellence in the University Entrance Exam

(top 100 of 33k stud.) Award given by the Catalan president July '18

Bronze Medal, Spanish National Physics Olympiad 2018 June 78

City of Reus High School Academic Excellence Award

Prize given to the best student at each high school by the mayor

TEACHING EXPERIENCE

Stanford University, USA

Teaching Assistant in Deep Reinforcement Learning.

This class is one of the biggest ones at Stanford with 800 students. I a tutorial lecture.

École Polytechnique Fédérale de Lausanne, Switzerland

Teaching Assistant in Computer Architecture Sept.'20 - Jan.'21 Led a team of a dozen highly skilled graduate students.

Owned the major project of the course: programming the Game of Life by John Horton Conway in Assembly code.

École Polytechnique Fédérale de Lausanne, Switzerland

Teaching Assistant in General Physics I: Mechanics Sept 79-Dec 79 Weekly meetings with a group of 20-40 students

Led exercise sections and assisted students with weekly problem sets.

ADDITIONAL RESEARCH EXPERIENCE

EPFL-Machine Learning and Optimization Lab (MLO) , CH

Bachelor's Thesis research supervised by Prof. Martin Jaggi and Prof. Mary-Anne Hartley Feb. '21 - July '21

Started an open-source online platform, DISCO, for privacy-preserving decentralized Machine Learning in medical image classification.

DISCO is currently being used by many graduate students at the MLO lab to deploy their algorithms.

Project available: https://github.com/epfml/disco.

EPFL - Formula Student Racing Team

Autonomous driving team – Independent Research Feb. - Jul'21

Initiated an independent Machine Learning Research Project. Trained a policy for the Control and Planning of an autonomous vehicle using Deep Reinforcement Learning and sim-to-real transfer methods.

REVIEWER

ICRA 25, IROS 25, RSS 24, ICLR 25 WORKSHOP WRL, RSS 25 WORKSHOP DEXTEROUS MANIPULATION

TALKS

IROS 2025 - Real-to-Sim-to-Real Visuomotor Robot Learning.

Oct. 25

Invited to give a 15-minute presentation on my Real-to-Sim-to-Real

CoRL 2024 - Spotlight talk.

Oct. 25

Gave a short talk on my Autonomous Robotic Reinforcement Learning with Asynchronous Human Feedback paper

Google Developer Student Club of Lausanne

Gave a talk explaining my experience during my internship at Microsoft and the whole process of job finding in the United States.

MEDIA COVERAGE

TechCrunch

Researchers are training home robots in simulation based on IPhone scans - July 24, 2024 - link

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Spotlight on MIT News

New Method uses crowdsourced feedback to help train robots -November 27, 2023 - link

MIT CSAIL Spotlight Video

Precision Home Robotics w/Real-to-Sim-to-Real, July 18 2024 link

TechXplore

An approach that allows robots to learn in changing environments from human feedback and exploration, November 28, 2023 - link

University of Washington News

Using photos or videos, these AI systems can conjure simulations that train robots to function in physical spaces, August 7th, 2024

Mention by Franka Robotics - link

Mention by Six Degrees of Robotics - link

Diari de Tarragona

A mentor from Salou to help students get into Harvard and Stanford, August 2nd 2024 - link

OUTREACH AND SERVICE

MIT Robotics Seminar Student Volunteer

Fall '23

Co-host of the MIT Robotics Seminar

- Meet and tour the invited Professors around MIT
- Organized the related activities for the speaker throughout the day (student roundtables, student lunch, meeting with MIT Professors).
- Hosted professors: Prof. Chelsea Finn (Stanford University), Prof. Nima Fazeli (University of Michigan), Prof. Cynthia Yu (University of Pennsylvania), Prof. Yu Sun (University of Toronto).

Research mentorship for students

I mentor and supervise students in multiple research projects, this consists of meetings multiple times per week to help them through the research process both in technical challenges or more high-level research guidance.

Mentees:

- Jerry Mao, MIT Undergraduate; LLMs for Robotics
- Carrie Yuan, UW Master's; finetuning pretrained models
- Samedh Desai, UW Undergraduate; human-in-the-loop learning

Volunteering for inclusion

I am particularly concerned about the exclusion from society of people with disabilities. Throughout my volunteering I have learned that it's social barriers, not their disability that hinder their participation in our community

Academic mentorship for students

'18 - Present

Studying abroad can be scary and unfamiliar for many young students. I mentor students from Spain to guide them through the process of applying top programs in Europe and the US.

Regatta Carla for the RETT syndrome

Helped with the social media and promotion of a sailing regatta to raise funds for research on the RETT syndrome.

Nastic Genuine

2018

Volunteered in the organization of a Spanish National football tournament for people with Down syndrome.

La Marato de TV3

2012- 18

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Played the baroque guitar and sang, to raise money for multiple causes, amongst research on chromosomic disorders.

Google Developer Student Club of Lausanne
Nov. 22
Gave a talk explaining my experience during my internship at
Microsoft and the whole process of job finding in the United States.

SKILLS

Languages:

Čatalan (native), Spanish (native), French (native), English (native), Portuguese (beginner), German (beginner)

Programming Languages

Python, Javascript, C, C++, Scala, Spark, Kotlin SQL, HTML, CUDA, VHDL, MIPS assembly

ML libraries: Pytorch, JAX, TensorFlow, Pytorch Lightning, Weights and Biases

Robotics Simulators: Isaac Sim, Mujoco, Pybullet, Drake

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