




Minttu Alakuijala

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EDUCATION

- **Ecole Normale Supérieure (ENS), Google, Inria** Grenoble / Paris, France
PhD in Computer Science *Feb 2019 – Dec 2022*
One of only 6 students to conduct a PhD at Google Research (CIFRE programme)
– Shared time 50-50 between Google and Inria
 - **Thesis:** Self-taught robots: Autonomous and weakly-supervised learning for robotic manipulation
 - **Research topics:** Robot learning from human videos, Residual reinforcement learning, Learning from demonstration for robotic manipulation
 - **Advised by:** Jean Ponce (ENS), Cordelia Schmid (Google), Julien Mairal (Inria)
- **University College London (UCL)** London, UK
Master of Engineering (MEng) in Computer Science *Sep 2014 – Jun 2018*
Cumulative average: 81 – First-class honours – Dean's List
 - **Master's project:** Reinforcement Learning for Query Reformulation and multi-step Question Answering with Prof. Sebastian Riedel
 - **Reinforcement learning research project:** Applied policy-based methods and Deep Q-networks on the OpenAI Gym website interaction benchmark Mini World of Bits with Prof. Jun Wang
 - **Relevant courses:** Advanced Deep Learning and Reinforcement Learning – Supervised Learning – Graphical Models – Statistical Natural Language Processing – Machine Vision

PROFESSIONAL EXPERIENCE

- **Postdoctoral Researcher** at Aalto University Helsinki, Finland
May 2023 – present
 - **Training LLM agents** for multi-step tool use with context distillation and human feedback: industry collaboration with System 2 AI
 - **Video-language reward models** for robotic manipulation
 - **Systematic thinking in LLMs:** 1) Monte Carlo Tree Search for building world models in code and other symbolic formats 2) Autonomous task decomposition with Directed Acyclic Graphs
 - Teaching Assistant for Machine Learning (CS-C3240) (won Faculty's Teaching Assistants of the Year Award 2023), and Seminar on NLP Research (CS-E407517)
- **Predoctoral Researcher** at Inria Grenoble, France
Nov 2018 – Jan 2019
Learning from demonstration for robotic grasping
- **Software Engineering Intern** at Google Zürich, Switzerland
Jun 2018 – Aug 2018
Applied machine learning to non-exclusively owned content detection on YouTube
- **Research Intern** at Google, *Machine Perception* Zürich, Switzerland
Jun 2017 – Sep 2017
 - **Computer vision:** Incorporated textual data to improve image classification
 - **Natural language processing:** Investigated different choices of word and sentence-level embedding methods
 - **TensorFlow, GPU programming:** Implemented and trained classification models on the MS COCO dataset
- **Software Engineering Intern** at Google London, UK
Jun 2016 – Sep 2016
 - Produced insights into the accuracy of Google Play Store Listing Experiments results
 - Independently defined the scope, design and deliverables of an open-ended engineering problem

PUBLICATIONS

- **Minttu Alakuijala***, Ya Gao*, Georgy Ananov, Samuel Kaski, Pekka Marttinen, Alexander Ilin, Harri Valpola
Memento No More: Coaching AI Agents to Master Multiple Tasks via Hints Internalization
In review, 2025
- **Minttu Alakuijala**, Reginald McLean, Isaac Woungang, Nariman Farsad, Samuel Kaski, Pekka Marttinen, Kai Yuan
Video-Language Critic: Transferable Reward Functions for Language-Conditioned Robotics
TMLR, 2025
- Nicola Dainese, Matteo Merler, **Minttu Alakuijala**, Pekka Marttinen
Generating Code World Models with Large Language Models Guided by Monte Carlo Tree Search
NeurIPS 2024
- Sergio Hernández-Gutiérrez, **Minttu Alakuijala**, Alexander Nikitin, Pekka Marttinen
Recursive Decomposition with Dependencies for Generic Divide-and-Conquer Reasoning
NeurIPS 2024 Workshop on System 2 Reasoning At Scale
- **Minttu Alakuijala**, Gabriel Dulac-Arnold, Julien Mairal, Jean Ponce, Cordelia Schmid
Learning Reward Functions for Robotic Manipulation by Observing Humans
ICRA 2023
- **Minttu Alakuijala**, Gabriel Dulac-Arnold, Julien Mairal, Jean Ponce, Cordelia Schmid
Residual Reinforcement Learning from Demonstrations
RSS 2020 Workshop on Advances & Challenges in Imitation Learning for Robotics
- **Minttu Alakuijala**, Julien Mairal, Jean Ponce, Cordelia Schmid
Discovering Actions by Jointly Clustering Video and Narration Streams Across Tasks
CVPR 2020 Workshop on Learning from Instructional Videos

LEADERSHIP & EXTRACURRICULAR EXPERIENCE

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| • Aalto LLM community, Co-organiser of weekly seminars | <i>Nov 2023 – present</i> | Helsinki, FI |
| • FCAI RL & Language team, Coordinating postdoc | <i>May 2023 – present</i> | Helsinki, FI |
| • Inria Reinforcement Learning reading group, Main Organiser | <i>Jun 2020 – Feb 2021,</i> | Grenoble, FR |
| • MEng Computer Science Academic Representative | <i>Oct 2017 – Jun 2018,</i> | London, UK |
| • UCL Technology Society Representative | <i>Oct 2015 – Apr 2016,</i> | London, UK |
| • Coding Tutor for Code Club UK | <i>Jan 2015 – Mar 2016,</i> | London, UK |
| • Treasurer of UCL Vegetarian and Vegan Society | <i>Aug 2017 – Jul 2018,</i> | London, UK |
| • Undergraduate Mentor at University College London | <i>Sep 2015 – Dec 2015,</i> | London, UK |

TECHNICAL SKILLS

<i>Working knowledge</i>	Python, PyTorch, TensorFlow, JAX , ROS, Matlab, \LaTeX , Git, Google Cloud, AWS, SQL
<i>Basic knowledge</i>	Java, C/C++, HTML/CSS, Javascript, jQuery, ReactJS, Less.js, Node.js, Bash, Spark

LANGUAGES

<i>Native or near-native</i>	Finnish, English
<i>Working proficiency</i>	German, French