

# Alva Markelius - Curriculum Vitae

+447707966219 | [ajkm4@cam.ac.uk](mailto:ajkm4@cam.ac.uk) | [linkedin.com/in/alvamarkelius](https://www.linkedin.com/in/alvamarkelius) | [alvamarkelius.github.io](https://alvamarkelius.github.io)

## SUMMARY:

Highly driven and ambitious student with a multidisciplinary computer- and social science background. Deeply fascinated by the relationship between human cognition and AI, particularly emotion, anthropomorphism, gender and embodiment. Currently studying an MSt in AI Ethics and Society at University of Cambridge and determined to pursue a computer science PhD focused on the intersection of Social Robotics and AI Ethics.

## RESEARCH ACTIVITIES:

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### Brain+/DICE Lab, University of Gothenburg

Gothenburg, Sweden (2022 - present)

*Commissioned Researcher*

- Part of STINT initiation grant funded project between the University of Gothenburg and Koç University developing and researching humanoid social robotics, affective computing and digitalised gamified cognitive interventions.
- Researching human/robot interaction and gamified therapeutics for cognitive interventions for Danish Brain+.

### EU Joint Programme – Neurodegenerative Disease Research Network

Remote/Gothenburg (2022 - present)

*Network Organiser and Researcher*

- Forte-funded project which includes a research network aimed at exploring the possibilities of using digital technology (e.g. robotics, VR) and for implementation of cognitive training including differential outcomes training.

### RECOG-AI Leverhulme Centre for the Future of Intelligence

Cambridge, UK (2022 - 2023)

*Research Assistant*

- Research assistant in the DARPA-funded Kinds of Intelligence project RECOG-AI specifically aimed at a robust conceptual and methodological framework for benchmarking evaluation of cognitive capabilities and generality in AI.
- Specifically worked with task development for training AI agents in a novel and unique cognitive approach for learning affordances and object understanding.

### Human Factors Psychology Lab, Seoul National University

Seoul, S. Korea (2021 - 2022)

*Robotics Research Assistant*

- Collaborated with an international and interdisciplinary cohort and assisted research in affective human/robot interaction, applied cognitive psychology, UI/UX, social robotics and VR.
- Active member of academic skill workshop. Demonstrated usage of Furhat robot design social interface and acquired field-relevant academic presentation and discussion skills.

### ETIS Laboratory CY Cergy Paris Université

Paris, France (2022)

*Research Assistant*

- Recipient of the EUTOPIA EURSS research scholarship to visit and conduct research at human/robot interaction lab.
- Conceptualised and implemented research project *Improving Robot Affect-Grounded Language Acquisition with Human Caregiver using Differential Outcomes Training* based on CY Cergy previous research.

## EDUCATION:

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### University of Cambridge, Lucy Cavendish College

Cambridge, UK (2022 - present)

*AI Ethics & Society Master of Studies*

- Part time master studies with a main interest in social robotics, cognitive capabilities in AI, emotion recognition AI, technology policy, intercultural AI narratives and human rights impacted by AI.

### Seoul National University

Seoul, S. Korea (2021 - 2022)

*Exchange year (Artificial Intelligence)*

- GPA 4.12 (Equivalence of First Class Honours classification).
- Relevant coursework: Explainable AI and Data Science, Affective Science, Psychology and Human-AI Interaction, Interdisciplinary approaches to AI, AI and Labour Economics and Cognitive Neuroscience.

### University of Gothenburg

Gothenburg, Sweden (2019 - 2022)

*Cognitive Science Bachelor Degree*

- GPA 3.8 (Equivalence of First Class Honours classification).
- Achieved highest grade and highest overall exam mark of all students on two AI courses (Machine learning and Data Analysis, AI and Human Cognition).
- Board member Cognitive Science Student Association.
- Completed computer science focused thesis as part of international research project with Koç University in Türkiye; *Differential Outcomes Training of Visuospatial Memory: A Gamified Approach Using a Socially Assistive Robot.*

## WORK EXPERIENCE:

### AI Lab Sweden AB

Stockholm, Sweden (2022 - present)

#### AI and Robotics Ethics Consultant

- Consulting clients about technical and ethical approaches to AI innovation, development and deployment in light of current regulations, frameworks and principles for responsible AI. Focus on diversity, inclusion and responsible AI.

### University of Gothenburg

Gothenburg, Sweden (2022 - 2023)

#### Teacher assistant and lecturer: AI/Machine Learning/Affective Science

- Taught and lectured on e.g. explainable AI at the course Machine Learning and Data Analysis. Practical assistance with programming and marking and computer science related parts of the cognitive science course.
- Teaching assistant and responsible for organising and carrying out inter-university course Mechanism of Emotion, focusing on theory of emotion and affective computing methodology with University of Warwick.

## EXTRACURRICULAR AND VOLUNTEER WORK

### Cambridge University AI Ethics Society

Cambridge, UK (2022 - present)

#### President (previously Secretary and Events Coordinator)

- President of a student run society aimed at spreading awareness on the social and political effects of technology.

### Centre for Human Inspired AI (CHIA) Early Career Community

Cambridge, UK (2023 - present)

#### Community Committee Member

- Responsible for organising events for a wide community of Cambridge postgraduate students in AI.

### International Conference on Social Robotics

Doha, Qatar (2023)

#### Workshop Organiser and Co-Chair

- Co-Researching with Humans-in-the-Loop: Using participatory methods, research and co-design in HRI.

### IEEE International Conference on Robot and Human Interactive Communication

Busan, S. Korea (2023)

#### Special Session Organiser; Chair and Associate Editor

- SARCHA: Socially-Assistive Robots in Clinical and Healthcare Applications.

### AI Ethics & Society Cambridge Delegation to Nairobi

Nairobi, Kenya (2023)

#### Delegate

- Part of delegation of Cambridge AI Ethics students to learn about the promises and potential pitfalls of AI in Kenya and East Africa by engaging with i.e. Kenyan government, Microsoft, IBM, British Commission and Lawyer's Hub.

### Cambridge AI Safety Hub Fellowship

Cambridge, UK (2022)

#### Fellowship Participant

- Fellow in technology focused reading/discussion group on e.g. interpretability, AI capabilities and generality.

### International Summer School on AI and Games

Online (2022)

#### Participant

- Accelerated technical ability, development and theory in the background and key techniques for AI in games.

### UN Climate Change Conference

Paris, France (2015)

#### Representative

- Representative for association Nature and Youth Sweden at the UN Climate Change Conference (COP21) in Paris.

## AWARDS

**Nova 111 Student List 2023** - one of the 111 young people with most potential in Sweden (Mathematics, Data, and Analytics)

**Career Stipend Sweden 2022** - prestigious stipend awarded to promising early career students in Sweden.

## INVITED TALKS

Cambridge Centre for Human Inspired AI - Social Robotics Research

Cambridge (2023)

Microsoft Share & Evolve Sweden – AI Ethics and Responsibility

Stockholm (2023)

Oxbridge Robotics Summer School – Robotics and Ethics

Cambridge (2023)

EQUALS EU – Whose Digital Future? Gender, Rights, Inclusion, and Exclusion

Geneva (2023)

Nordic China Startup Forum – AI Trends, Business and Female Leadership

Online (2022)

Science Festival Gothenburg – AI, Robotics and Science Fiction

Gothenburg (2020)

Climate Parliament, Stockholm University – AI, Climate Change and Science Fiction

Stockholm (2018)

## MISCELLANEOUS

**Software abilities:** Software development and computer programming (Python, R, Matlab, HTML, LaTeX) and machine learning (Tensorflow, SKLearn, Shap, Lime). Proficient with iMotions, Unity, SPSS and Microsoft Office.

**Skills:** Experienced critical and creative thinker and a fast learner. Comprehensive computer and technology skills including programming, technical writing and data analysis. Well-rounded skill set in qualitative and quantitative research design and analytics. Recognised for enthusiastic work-ethics, collaboration and noteworthy written and verbal communication skills.

**Languages:** English (Fluent, IELTS 8.5), Swedish (Native), German (Fluent), Korean (Beginner).

## PUBLICATIONS

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**Markelius, A.**, Sjöberg, S., Lemhauori, Z., Cohen, L., Bergström, M., Lowe, R., Cañamero, L., (2023), A Human-Robot Mutual Learning System with Affect-Grounded Language Acquisition and Differential Outcomes Training. *International Conference on Social Robotics 2023*.

**Markelius, A.**, Sjöberg, S., Bergström, M., Ravandi, B.S., Vivas, A.B., Khan, I., Lowe, R.: (2023), Differential Outcomes Training of Visuospatial Memory: A Gamified Approach Using a Socially Assistive Robot. *Under revision to International Journal of Social Robotics*.

Chan, A., Salganik, R., **Markelius, A.**, Pang, C., Rajkumar, N., Krashennnikov, D., ... & Maharaj, T. (2023, June). Harms from Increasingly Agentic Algorithmic Systems. In *Proceedings of the 2023 ACM Conference on Fairness, Accountability, and Transparency* (pp. 651-666).

### Upcoming 2023:

**Markelius, A.**, Wright, Connor. (2023) The Mechanisms of AI Hype and its Planetary and Social Costs, *Submitted manuscript to Topical Collection on The Ethical Implications of AI Hype: Examining the overinflation and misrepresentation of AI capabilities and performance*

Rutar, D., **Markelius, A.**, Schellaert, W., Burnell, R., Burden, J., Voudouris, K., Cheke, L., & Hernández-Orallo, J. (2023), Robust Evaluation of Affordance Understanding in Artificial Agents, *Unsubmitted manuscript*.