# Linus Ericsson

scholar.google.com linus.ericsson@ed.ac.uk linusericsson.github.io

I am a finishing PhD student at the University of Edinburgh. My research is on unsupervised representation learning, which can enable less reliance on manual annotation by focusing on the underlying structure in data. My work has appeared in CVPR, BMVC and the Signal Processing Magazine, among others. My other research interests include multimodal learning and responsible applications to healthcare and climate.

## PUBLICATIONS

**Parameter-Efficient Fine-Tuning for Medical Image Analysis: The Missed Opportunity**
Dutt R., Ericsson L., Sanchez P., Tsaftaris S. and Hospedales, T. M., *under review, arXiv:2305.08252*

**Better Practices for Domain Adaptation**
Ericsson L., Li D. and Hospedales, T. M., *In AutoML, 2023.*

**Region Proposal Network Pre-Training Helps Label-Efficient Object Detection**
Ericsson L., Dong N., Yang Y., Leonardis A. and McDonagh, S.,
*In Self-Supervised Learning - Theory and Practice, Workshop at NeurIPS, 2022, arXiv:2211.09022*

**Why Do Self-Supervised Models Transfer?**
**On the Impact of Invariance on Downstream Tasks**
Ericsson L., Gouk H. and Hospedales, T. M.,
*In BMVC, 2022, arXiv:2111.11398*

**How Well Do Self-Supervised Models Transfer?**
Ericsson L., Gouk H. and Hospedales, T. M.,
*In CVPR, 2021, arXiv:2011.13377*

**Self-Supervised Learning: Introduction, Advances and Challenges**
Ericsson L., Gouk H., Loy, C.C. and Hospedales, T. M.,
*IEEE Signal Processing Magazine, arxiv :2110.09327*

## EDUCATION

**University of Edinburgh** **Edinburgh, UK**
*PhD in the Centre for Doctoral Training in Data Science* *2019 - present*

My research focuses mainly on **unsupervised representation learning** by exploiting the underlying structure in data rather than manual annotation. I am also interested in how we can effectively transfer knowledge from large-scale pre-training to application domains with limited data and compute resources, using transfer learning and domain adaptation approaches.
**Supervisor:** Prof. Timothy M. Hospedales

**University of Edinburgh** **Edinburgh, UK**

*MSc(R) Data Science, Merit (68%)* *2018 - 2019*

**MSc Project:** ARCTIC: A Fast Online Algorithm for Learning Additional Rewards in RL - We develop an RL meta-learning algorithm which alleviates the need for designing manual rewards, and guides an agent toward a more domain-generalisable policy.
**Supervisor:** Prof. Timothy M. Hospedales

**Durham University** **Durham, UK**

*MEng in Computer Science, First Class Honours (80%)* *2014 - 2018*

**MEng Project:** Evaluating cross-domain and multi-task performance of Deep Reinforcement Learning across the Atari benchmark (Presented at the Rising Stars Research Symposium 2018)
**Supervisor:** Prof. Magnus Bordewich

**BSc Project:** Composing Live Music with Neural Networks and Genetic Algorithms (Bronze Award for Best Poster for undergraduate project)
**Supervisor:** Dr Steven Bradley

---

## WORK

**Samsung AI Center** **Cambridge, UK**

*Research Scientist Intern* *Sept 2022 - Feb 2023*

I worked as a research scientist intern with Timothy Hospedales and Da Li for 6 months. The project centred around unsupervised domain adaptation, with a special focus on providing reliable model selection and hyperparameter optimization in the absence of target domain labels.
**Supervisor:** Prof. Timothy M. Hospedales

**Huawei Noah's Ark Lab** **London, UK**

*Research Scientist Intern* *Oct 2021 - Mar 2022*

I worked as a research scientist intern with Steven McDonagh and Yongxin Yang for 6 months. The project centred around large-scale object detection for autonomous driving, with a special focus on improving self-supervised pre-training on autonomous driving data.
**Supervisor:** Dr Steven McDonagh

**Teaching Experience** **Edinburgh & Durham, UK**

*Tutoring, demonstrating and marking* *2017 - present*

I have undertaken tutoring, demonstrating and marking roles during my university time. This has included teaching undergraduate and postgraduate students in courses on: programming in Python/Java, machine learning, theory of computation and programming for speech and language.

**Computer Vision Research Group** **Durham, UK**

*Research internship at Durham University* *2017*

I worked with Professor Toby Breckon over a summer, developing dense stereo vision and visual odometry for robotics. I also had the chance to collaborate with the *Centre for Vision and Visual Cognition* on a project involving Brain-Computer Interfaces as an application of Deep Learning.
**Supervisor:** Prof. Toby Breckon

---