

Linus Ericsson

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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

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](https://arxiv.org/abs/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](https://arxiv.org/abs/2111.11398)

How Well Do Self-Supervised Models Transfer?

Ericsson L., Gouk H. and Hospedales, T. M.,
In CVPR, 2021, [arXiv:2011.13377](https://arxiv.org/abs/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](https://arxiv.org/abs/2110.09327)

EDUCATION

University of Edinburgh

PhD in the Centre for Doctoral Training in Data Science

Edinburgh, UK

2019 - present

My research is on **unsupervised representation learning** by exploiting the underlying structure in data rather than manual annotation. I am also interested in how traditional supervised learning can benefit from self-supervised methods, as the advantage of learning from labels diminishes.

Supervisor: Prof. Timothy M. Hospedales

University of Edinburgh

MSc(R) Data Science, Merit (68%)

Edinburgh, UK

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

MEng in Computer Science, First Class Honours (80%)

Durham, UK

2017 - 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

Durham University

BSc in Computer Science, First Class Honours (82%)

Durham, UK

2014 - 2017

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**

Research Scientist Intern

Cambridge, UK

Sept 2022 - Feb 2023

Working as a research scientist intern with Timothy Hospedales and Da Li for 6 months. The project centres 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

Research Scientist Intern

London, UK

Oct 2021 - Mar 2022

Working as a research scientist intern with Steven McDonagh and Yongxin Yang for 6 months. The project centres 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

Tutoring, demonstrating and marking

Edinburgh & Durham, UK

2017 - present

I have undertaken tutoring, demonstrating and marking roles during my university time. This has included teaching undergraduate and postgraduate students in the following courses:

- Introductory Applied Machine Learning
- Introduction to Programming (in Python/Java)
- Computer Programming for Speech and Language Processing
- Theory of Computation.

Computer Vision Research Group

Research internship at Durham University

Durham, UK

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
