Linus Ericsson

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I am a postdoctoral researcher at the University of Edinburgh. My research focuses on representation learning, efficient architectures and adaptation across distribution shifts. 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 climate and healthcare.

PUBLICATIONS

Parameter-Efficient Fine-Tuning for Medical Image Analysis: The Missed Opportunity
Dutt R., <u>Ericsson L.</u>, Sanchez P., Tsaftaris S. and Hospedales, T. M.,
In Medical Imaging with Deep Learning, 2024, paper link

Label-Efficient Object Detection via Region Proposal Network Pre-Training
<u>Ericsson L.</u>, Dong N., Yang Y., Leonardis A. and McDonagh, S.,
In Neurocomputing, 2024, paper link

Self-Supervised Disentanglement by Leveraging Structure in Data Augmentations
Eastwood C., von Kügelgen J., <u>Ericsson L.</u>, Bouchacourt D., Vincent P., Schölkopf B., Ibrahim M.,
In Causal Representation Learning, Workshop at NeurIPS, 2023, paper link

Better Practices for Domain Adaptation
<u>Ericsson L.</u>, Li D. and Hospedales, T. M.,
In AutoML (best paper award), 2023, paper link

Why Do Self-Supervised Models Transfer?
On the Impact of Invariance on Downstream Tasks
<u>Ericsson L.</u>, Gouk H. and Hospedales, T. M.,
In BMVC, 2022, paper link

How Well Do Self-Supervised Models Transfer?
<u>Ericsson L.</u>, Gouk H. and Hospedales, T. M.,
In CVPR, 2021, paper link

Self-Supervised Learning: Introduction, Advances and Challenges
<u>Ericsson L.</u>, Gouk H., Loy, C.C. and Hospedales, T. M.,
IEEE Signal Processing Magazine, paper link

EDUCATION

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

My research focused mainly on **unsupervised representation learning** by exploiting the underlying structure in data rather than manual annotation. I also explored effective knowledge transfer 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