Ciwan Ceylan | CV

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PhD Candidate | Data Scientist | Machine Learning Engineer

I am a researcher, data scientist, and machine learning engineer with over five years of experience spanning both industry and academia. My work focuses on unsupervised representation learning on graphs, with an emphasis on developing models that are both mathematically interpretable and computationally scalable. I am currently completing my PhD, which I will defend in Autumn 2025. My doctoral research has been conducted in close collaboration with and supported by SEB, where I have concurrently worked as a data scientist.

Technical Skills

Programming Languages:

Excellent: Python • **Proficient**: SQL • **Knowledgeable**: C/C++, Java

Machine Learning & Tools:

Excellent: PyTorch, Scikit-learn, Pandas, NumPy, NetworkX, Jupyter Lab • **Proficient**: TensorFlow, SLURM, Apache Spark

Cloud & Infrastructure:

Proficient: Docker, Google Cloud Platform, BigQuery • **Knowledgeable**: Terraform, Kubernetes

Publications

[5] Ciwan Ceylan, Kambiz Ghoorchian, and Danica Kragic. "Disobeying Directions: Switching Random Walk Filters for Unsupervised Node Embedding Learning on Directed Graphs". In: *Transactions on Machine Learning Research* (2025).

[4] Ciwan Ceylan, Kambiz Ghoorchian, and Danica Kragic. "Full-Rank Unsupervised Node Embeddings for Directed Graphs via Message Aggregation". In: *Transactions on Machine Learning Research* (2025).

[3] Ciwan Ceylan, Kambiz Ghoorchian, and Danica Kragic. "Scalable Unsupervised Feature Selection with Reconstruction Error Guarantees via QMR Decomposition". In: *CIKM '24* (2024).

[2] Ciwan Ceylan, Salla Franzén, and Florian T. Pokorny. "Learning Node Representations Using Stationary Flow Prediction on Large Payment and Cash Transaction Networks". In: *ICML '21* (2021).

[1] Ciwan Ceylan and Michael U. Gutmann. "Conditional Noise-Contrastive Estimation of Unnormalised Models". In: *ICML '18* (2018).

Experience and Education

Industrial PhD Student — **Stockholm**

*KTH Royal Institute of Technology, **Supervisor**: Prof. Danica Kragic* — *2019–Present*

Thesis title: *Towards Unsupervised, Analysable and Scalable Node Embedding Models for Transaction Networks*

- Published research on graph representation learning at top-tier machine learning and data mining venues (see publication list below).
- Designed and trained deep graph neural networks using **PyTorch**, achieving state-of-the-art results on standard benchmarks.
- Developed scalable data pipelines for training and evaluation using the **Python ecosystem**, **Google Cloud Platform**, and **SLURM GPU clusters**.
- Led research projects from conceptualization to publication, with a focus on unsupervised learning and interpretable models for graphs.

Data Scientist — **Stockholm**

SEB, Group Data Analytics — *2019–Present*

Experienced in the full data science workflow: data exploration (Jupyter, SQL, visualizations), model development (implementation, pipelines, testing, evaluation), and presenting results through dashboards and Streamlit applications.

Selected projects:

- Developed an LLM-based automation system for regulatory questionnaire reviews, reducing manual processing time and improving consistency across compliance workflows.
- Enhanced housing price estimation by integrating GPS-based features with advanced ML models, cutting error rates by **60%** and improving loan valuation and risk assessment.

Research Assistant — **Aachen**

RWTH Aachen University, Computer Vision Group — *2018*

- Conducted research on **vision-language models** with long-term memory for scene understanding and visual Q&A tasks.

MSc Thesis Project — **Edinburgh**

*Institute for Adaptive and Neural Computation, **Supervisor**: Prof. Michael U. Gutmann* — *Spring 2017*

Thesis title: *Conditional Noise-Contrastive Estimation: With Application to Natural Image Statistics*

- Published findings in **ICML 2018**, demonstrating innovations in contrastive learning techniques.

MSc Degree in Engineering Physics and Machine Learning — **Stockholm**

KTH Royal Institute of Technology — *2012–2017*

GPA (Swedish system): **4.7 / 5.0**

Notable GitHub Projects

2023-Present: Single-pass rSVD in PyTorch; `https://github.com/ciwanceylan/torch-sprsvd`

PyTorch implementation of *Single-pass Randomized Singular Value Decomposition*, for approximate computation on streaming data using GPU acceleration.

Awards

Multiple scholarships awarded on the basis of academic excellence:

2017 & 2015: KTH General student scholarship

2015: Henrik Göransson's Sandviken scholarship

2011: John-Arthur Ekström's scholarship

Languages

1st Language: Swedish *Native*

Professional: English *TOEFL iBT score: 114*

Intermediate: German *CEFR level: B2*

References

Prof. Danica Kragic
PhD supervisor at KTH
✉ dani@kth.se

Salla Franzén
Former manager and industrial supervisor at SEB
✉ sf@navigareventures.com

Additional references available upon request