

Vocational Experience

- 2022– **Senior Data Engineer**, *CombiEnt Mix*, Stockholm, Current position
Project work for clients including project management duties, mentoring of Junior Data Engineers.
- 2020–2022 **Data Engineer**, *CombiEnt Mix*, Stockholm
Project work for clients alongside developing, deploying and teaching for Data Science Campuses.
- 2014–2020 **PhD Student**, *Uppsala University*, Uppsala
Study and research in the area of dynamical systems and teaching general mathematics.
- 2019–2020 **Data Engineering Science PhD Fellowship**, *CombiEnt Mix*
Setting up and managing a small on-premise cluster of NUCs for prototyping and testing of big data and machine learning workloads.
- 2016 **Visiting Research Scholar**, *Stony Brook University*, Stony Brook
Research in dynamical systems.
- 2011–2014 **Amanuens**, *Uppsala University*, Uppsala
Teaching mathematics and light administrative duties.

Sample experience from current position

Project work Typical project work involves working in a team together with one or more data scientists and a primary contact. As a data engineer I am responsible for planning and implementing the engineering aspects of the project to fulfill the requirements of the project to the satisfaction of the client and to communicate my plan and the progress to the client.

1. The most recent project involved me joining a client's data engineering team to help them develop a data lake and data platform. The work involved me suggesting architectural changes to the data lake in order to reduce costs and improve performance, writing code for the data pipelines and writing documentation for all parts of the data lake.
2. Another recent project involved working with a data scientist to set up a pipeline that would fetch images from a queue, perform image segmentation on the image, use the segmentation results to perform computations and publishing these results to another message queue. The data scientist was responsible for developing the image segmentation model, we cooperated in deploying the model and I was responsible for developing the data pipeline that would fetch the data, store it, submit it to the model and publish the results to the message queue.
3. Another recent project involved me setting up a web app that would help the client in data gathering in order to increase the amount of data available to the data scientist on the project to train the machine learning model on. For this I used the Azure Web App service to deploy a

Docker compose file. The compose file used an Azure Storage Account to mount a file share containing data to be annotated by the client. The annotations were then stored in an Azure Cosmos DB instance. The gathered data would then be used to create version controlled datasets in Azure Machine Learning to be used by the data scientist on the project.

Data Science Campus For the Data Sciences Campuses ran by Combient Mix I have been mentoring participants in their project work. This involves answering questions from the participants, teaching them various topics of data science and generally guiding them through the data science process from gaining business understanding and exploring data to evaluating machine learning models and planning for their deployment.

In addition to this teaching role I have also been involved in developing and running the platform used by the Campus participants for doing assignments and practicing the data science process. This involves a lot of work with Docker, Kubernetes, Helm, Python and JavaScript as well as the various cloud environments used to host the platform.

Education

- 2014–2022 **Doctor of Philosophy**, *Uppsala University*, Uppsala
Mathematics
- 2012–2014 **Master of Science**, *Uppsala University*, Uppsala
Mathematics

Academic Experience

PhD thesis

- title **Properties of invariant sets in certain two-dimensional dynamical systems: Renormalization and beyond**
- supervisors Denis Gaidashev and Jordi-Lluís Figueras
- description Studying properties of invariant sets of dynamical systems, focusing on infinitely renormalizable area-preserving maps.

Master thesis

- title **Legendrian Approximations**
- supervisor Tobias Ekholm
- description Finding Legendrian approximations of 2-dimensional submanifolds of \mathbb{R}^5 with the standard contact structure.

Papers

- 2022 **Universality but no rigidity for two-dimensional perturbations of almost commuting pairs**, *With Denis Gaidashev*, Submitted for publication
- 2022 **Coexistence of bounded and unbounded geometry for area-preserving maps**, *With Denis Gaidashev*
- 2018 **Existence of non-smooth bifurcations of uniformly hyperbolic invariant manifolds in skew product systems**, *With Jordi-Lluís Figueras*, *Nonlinearity* **31** 5573, <https://doi.org/10.1088/1361-6544/aae030>

2017 **On the invariant Cantor sets of period doubling type of infinitely renormalizable area-preserving maps**, Commun. Math. Phys. (2017), <https://doi.org/10.1007/s00220-017-3018-3>

Teaching

Fall 2017 **Fundamentals of Data Science**, *Uppsala University*

Teaching assistant.

Fall 2017 **Algebra I**, *Uppsala University*

Main lecturer and problem sessions.

Fall 2017 **Algebra and Geometry**, *Uppsala University*

Substitute lecturer.

Fall 2017 **Introduction to Data Science**, *Uppsala University*

Teaching assistant.

Fall 2016 **Algebra I**, *Uppsala University*

Main lecturer and problem sessions.

Fall 2015 **Algebra I**, *Uppsala University*

Main lecturer and problem sessions.

Spring 2015 **Linear Algebra II**, *Uppsala University*

Problem sessions.

Languages

Swedish Fluent

Mother tongue

English Fluent

French Basic

Computer skills

General skills

- Data Engineering
- Data Science
- Machine Learning
- Microsoft Azure
- Google Cloud
- Rigorous numerics with interval arithmetic

Programming languages

- Python
- C#
- Scala
- Haskell
- Bash
- SQL
- C++

Miscellaneous

- Linux
- Git
- Docker
- Kubernetes
- Apache Spark
- Apache Hadoop
- Apache Kafka
- Apache Nifi
- L^AT_EX

Other experience

- Co-organizer of the Uppsala Big Data Meetup.
- Auditor of the Uppsala Linux User Group, 2019–2021.
- PhD student representative on the board of the Department of Mathematics at Uppsala University, 2016–2017.
- Board member and secretary of Matematiska föreningen in Uppsala, 2016–2018.
- President of the student union of mathematics students, 2012–2013.