



Daniel Mikkola

Data Scientist & Astronomer

- 1992, October 6
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- Swedish
- LinkedIn profile
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About Me

Half-swedish, half-finnish I was born outside Stockholm and fell in love with Skåne. I identify as a data scientist because manipulating large datasets, finding structure and patterns in them, has become something I'm not only very familiar with but something I find very engaging. Nothing makes time fly like hunting through data.

Key Skills

- Scientific Modelling
 - Formulating problems
 - Building models/solutions
 - Analyzing result
- Statistical Analysis
- Data Mining for patterns
- Data Visualisation and Presentation
- Writing and Communication
- Learning and teaching
 - Learning complex concepts and explaining them simply

Computer skills

- Python, MATLAB, C++, Unity, SQL
- Linux, Bash, Git, Github, Latex

Working Experience

2017 – 2022 **PhD Researcher** Lund University
Worked extensively with a new, ~10 billion data point, map of the Galaxy to find substructures within it to reveal its history from incomplete data.

- Performed numerical simulations of $\sim 10^6$ interacting particles
- Used statistical tools to uncover hidden features in data
- Wrote SQL-like queries to extract specialized data
- Built tools to process, analyse and visualise output

Communication and networking are key skills developed during my work as I have been invited to give talks about my research to people both within and outside of my field. I have attended several conferences to present my research to an international audience.

Learning and teaching are some of the most valuable skills I have learnt as I have had to familiarise myself with new codes and tools to perform my research, as well as having to bring that knowledge to others. I also developed and taught a course in programming.

2017 – 2022 **Outreach Worker** Lund University
The Physics and Lasershow at Lund University arranges around 70-80 shows every year for young adults and the general public, displaying how exciting science can be, inspiring young adults to study science.

Education

2017 – 2022 **Ph.D Astronomy & Astrophysics** Lund University
Five years of graduate studies including research, student union volunteering, and up to a year's worth of courses in topics like: programming, data analysis, statistical tools, machine learning, etc.

2016 – 2017 **M.Sc, Astronomy and Astrophysics** Lund University
Continuation of Master's degree with thesis work. Resulted in master's thesis:
Radial migration of stars, measured in N -body simulations

2016 – 2017 **M.Sc, Astronomy and Astrophysics** Aarhus University
One year of intensive courses at Aarhus University in Denmark.

2012 – 2015 **B.Sc, Physics** Lund University
Bachelor's studies spanning a wide range of physics topics. Resulted in bachelor's thesis:
Formation of super-Earths via pebble accretion onto planetesimals

Experience Highlights

Machine Learning *Introduction to Deep Learning.* A PhD level course I have taken introducing the basic concepts of deep learning. We used python libraries like Keras and Tensorflow.


Teaching programming *Introduction to Python programming.* I personally developed and taught this crash-course in Python programming for undergraduate students with a focus on data manipulation.

Media As part of my second publication, I made a press-release explaining my research for a broader audience which was a good exercise in communicating a technical subject to people without expert knowledge. The press-release can be seen here: <https://www.lu.se/artikel/lundaforskare-har-kartlagt-vintergatans-vita-dvargar>




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Publications

See LinkedIn for publications, or:
 Astrophysics Data System

Languages

 Swedish	● ● ● ● ●
 English	● ● ● ● ●
 Danish	● ● ● ● ●

Memberships & Qualifications



Academimusiccorpset - A student orchestra, member #445



www.padi.com - PADI certified Open Water Diver & Dry-suit diver



Swedish driver's license, B





Volunteering

2021 – 2022	Workplace Representative Towards the end of my employment as a PhD student at Lund University I got involved with my labour union. I spent my last year dealing with union-related work beside my studies.	ST Labour Union
2017, 2018, 2020	PhD student representative I was involved with the student council at my department. I was a representative in the Astronomy Advisory Group and in the Department board.	NDR The Science Doctoral Student Council
2013 – 2015	Board member During my bachelor's and master's education I was involved in the undergraduate student union. Primarily I was in the union board, but I also helped out in other areas. For example, in 2016 I organised the revival of LUNA's formal ball.	LUNA The Science Student Union

Awards

2020	105 000 SEK Research grant	Walter Gyllenberg foundation
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Hobbies

 Camping	I frequently camp outdoors during all seasons of the year.
 Diving	I am a PADI-certified diver since June 2022.
 Gaming	I like to play both video games and board games.
 Exercise	I enjoy working out at the gym, doing calisthenics outside, and cardio activities.