

Andreas Soleiman

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PROFESSIONAL EXPERIENCE

H&M Group, Stockholm, Sweden.

April 2022 - Present

Lead Data Scientist, Business Tech, The Laboratory Team.

The Laboratory Team is an innovative arm within the organization. The goal of the Lab Team is to drive the innovation of the organization and the fashion industry as a whole forward, and we report directly to the H&M leadership.

Key Responsibilities:

- Leading the development of fashion content creation using state-of-the-art industry and research practices, including generative AI models. We work in close collaboration with OpenAI and the open source community, to maintain pace and experiment with ML models for in-house use cases.
- My work includes researching and exploring the latest development in academia and industry, and building applications out of them. From ideation phase and designing experiments, building Proof-of-Concept (POC) models, to piloting deployments and moving into production phase.
- I have experience working across Azure + Databricks, Google Cloud Platform (GCP) + Vertex AI, for provisioning resources, and development of Machine Learning applications.
- My work revolves heavily around communication; to internal stakeholders for business use cases, managing a team of excellent engineers, and co-operating with other software engineers, MLOps Engineers, Cloud Solutions Architects, Frontend Developers, external consultants, etc, for building applications based on our experiments.

Zenseact, Gothenburg, Sweden.

Dec 2021 - April 2022

Feature Engineer, Team ShadowFax, Autonomous Driving.

Zenseact is a startup spinoff from Volvo Cars, which develops software products for self-driving consumer vehicles, with a strong focus on safety. The platform is written as a high performance library using C++

Key Responsibilities:

- I was involved in developing the platform for autonomous driving in dynamic scenarios, in particular edge cases where the current software fails. We worked as an agile team, i.e. following agile development practices.
- My work included driving, and collecting and analyzing logs from these driving exhibitions using the driver assistance (AD) system present in the cars. These logs are used to determine relevant KPIs for improving the platform.
- I furthermore had time to explore advanced improvements upon the AD system, such as analyzing LIDAR point clouds and camera features to improve upon the vision aspect of the vehicle, and testing out new features.

Electrolux, Stockholm, Sweden.

Jan 2021 - Dec 2021

Data Scientist, Global Data Science Team, Connectivity Data Domain.

Electrolux is a world-leading producer of household appliances. I was part of the Global AI & Data Science team, with a focus on studying wirelessly connected appliances and their sensor behaviour.

Key Responsibilities:

- Responsible for taking telemetry data from connected appliances and building analytical and machine learning products out of it - such as implementing optimization models for advanced analytics on large scale data.
- Participated in the Extract-Transfer-Load (ETL) workflow process, which includes injecting big data into data lake, and building higher level aggregated layer for consumption by dashboards.
- Tools used: Databricks (Spark), Scala and Python, Airflow for workflow orchestration, and Microsoft Azure as a Cloud hosting platform. I also focus on automation, with deployments of pipeline through proper CI/CD process (Jenkins) as well as participating in an Agile framework for sprint planning and development (Atlassian suites - Confluence, Jira, Bitbucket).

ACADEMIC RESEARCH EXPERIENCE

University of Cambridge, Cambridge, UK.

May 2020 - November 2020

Research Intern, supervised by Prof. Nicholas Lane

Assisting the Cambridge Machine Learning Systems Lab (CaMLSys) in the design of a battery-free intelligent microphone. I built an energy harvesting circuit using a solar powered Artemis ATP that encodes low power audio signals using a TensorFlow Lite enabled speech recognition algorithm.

Max Planck Institute for Software Systems (MPI-SWS), Saarbrücken, Germany.

January 2020 - April 2020

Research Intern, supervised by Prof. Peter Druschel

Working with the Distributed Systems Group in analyzing privacy models of mobile social networks. Helped design a graph representation of an encounter based social network and implemented it using Python. The algorithm filters through a data set and identifies encounters based on their relative coordinates within a defined radius.

Uppsala Networked Objects (UNO), Uppsala University, Sweden

June 2017 - December 2019

Research Assistant, supervised by Dr. Ambuj Varshney and Prof. Thiemo Voigt

Conducted research on designing battery-free sensors which includes hardware and software mechanisms related to sensing, wireless communication, and energy-harvesting. The outcome of this work is peer-reviewed and published at top-tier academic conferences for mobile computing and visible light communication, including ACM VLCS 2017 (Co-located with ACM MobiCom 2017), ACM WiSec 2019, and ACM MobiCom 2019.

EDUCATION

Uppsala University, Uppsala, Sweden

August 2012 - June 2017

Master of Science, Engineering Physics (5+ year Integrated Programme, includes Bachelor's studies)

Massachusetts Institute of Technology, Boston Cambridge, USA

August 2020 -

Left during the pandemic - PhD in Computer Science and Electrical Engineering, under the supervision of Prof. Fadel Adib.

TEACHING AND VOLUNTEERING

Teaching Assistant

Uppsala University, Uppsala, Sweden

- UU-61208: Internet of Things
- 1TE661: Signals and Systems

January 2018 - April 2018

September 2015 - January 2016

Head of Corporate Relations, Uppsala Engineering Physics Union.

April 2013 - April 2014

Leading the engineering physics union in forming relationships with industry representatives across Sweden.

SELECTED HONORS AND AWARDS

- Selected for the Rising Stars Forum at ACM MobiSys (2019)
- Best demonstration award at ACM WiSec (2018)
- Selected for the Cornell, Maryland, Max Planck Pre-Doctoral Research School (2018)
- Winner of the ACM Student Research Competition at ACM MobiCom (2017)
- Best paper award at ACM VLCS, held in conjunction with ACM MobiCom (2017)

SELECTED PRESS

- Oxford Seminar, *Towards Sustainable Widespread Sensing*. <http://www.cs.ox.ac.uk/seminars/2304.html>
- Coverage by elektroniktidningen, *Forskning: Koppen kan berätta om kaffet är varmt* <https://etn.se/index.php/nyheter/65787-forskning-koppen-kan-beratta-om-kaffet-ar-varmt.html>
- ABB Research Award 2019 goes to battery-free sensor project. <https://new.abb.com/news/detail/46277/abb-research-award-2019-goes-to-battery-free-sensor-project>

PUBLICATIONS

- Ambuj Varshney, **Andreas Soleiman**, Thiemo Voigt: *TunnelScatter: Low Power Communication for Sensor Tags using Tunnel Diodes*, 25th Annual International Conference on Mobile Computing and Networking (ACM MobiCom 2019), Los Cabos, Mexico (acceptance rate \approx 19%)
- **Andreas Soleiman**: *Enabling the Next Generation of Wireless Sensors*, ACM Rising Stars Forum at The 17th ACM International Conference on Mobile Systems, Applications, and Services (ACM MobiSys 2019), Seoul, South Korea
- Ambuj Varshney, **Andreas Soleiman**, Luca Mottola, Thiemo Voigt: *Battery-free Visible Light Sensing*, The Fourth ACM Workshop on Visible Light Communication Systems (ACM VLCS 2017, in conjunction with ACM MobiCom), Snowbird, Utah, USA (Best paper award)

ACADEMIC SERVICE

- External Reviewer of IMWUT (2019, 2020)
- Program Committee member of the ACM S3 Workshop, held in conjunction with ACM MobiCom (2019)

SPOKEN LANGUAGES

- **Native proficiency:** Swedish, Arabic
- **Full professional proficiency:** English
- **Elementary:** Mandarin, French

CERTIFICATES

- AZ-900: Microsoft Azure Fundamentals
- (Ongoing): Google Certified Professional Machine Learning Engineer
- (Ongoing): Google Certified Professional Data Engineer

TECHNICAL SKILLS

- **C++:** Platform/framework development
- **C:** Embedded systems programming for energy constrained IoT devices
- **Python:** signal processing (e.g. Scipy, filters and FFTs), machine learning (TensorFlow/Pytorch, Scikit-learn), data visualization (Matplotlib, ggplot), Pyspark on Databricks.
- **R:** Statistics
- **Scala:** ETL pipeline development.
- **Databricks:** Spark (Pyspark/Scalaspark), MLFlow, for Data Science and Data Engineering applications.
- **Azure/GCP:** Cloud hosting platforms used, for servicing Virtual Machines. For ML applications, used Azure + Databricks + Data Lake, and GCP + VertexAI + BigQuery etc.
- **LaTeX:** Scientific Writing
- **Docker:** Good for cross-machine development.
- **Node/NextJS:** Web Development. Typically for making demo apps and such.
- **Linux:** Debian/Ubuntu, Arch Linux, etc for working environment.
- **Vim/VSCode/PyCharm:** Coding environments and text editors.
- **SQL:** Database management and ETL.
- **PowerBI / Qlik Sense:** Dashboard analytics
- **Git / Bitbucket:** Version control
- **Confluence, Jira:** Documentation, agile workflow with sprint planning etc.
- **Apache Airflow:** Workflow management.
- **Java/Kotlin/Flutter:** Mobile applications
- **Eagle CAD:** Hardware design
- **Erlang and Standard ML:** Distributed systems programming
- **Matlab + Simulink:** Computational physics and automatic control systems design