

# Arseni Ivanov

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## EXPERIENCE

### Lund University, Lund – Doctoral Student

Nov 2024 – Current

- **Doctoral Student** - PhD student in WASP-sponsored program on GPGPU Neural Network Acceleration.
- **GPGPU Programming competition winner** - Winner of GPUMODE's AlphaFold TriMul acceleration competition. Fastest across all GPU's with Triton solution on H100, A100, B200 and MI300x.
- **Neural Texture Compression** - Paper under review implementing grouped random-access neural texture compression - utilizing cross-texture-set information redundancies to share latent grid embeddings and then using texture-unique shallow low-bit MLP's for real-time texel reconstruction on consumer GPUs. Triton kernel for accelerated training on various GPUs.

### Verisure Innovation, Malmö – Multiple Roles

June 2021 – Nov 2024

- **Machine Learning Engineer** - Requirement specification setting for Computer Vision edge products and cloud services.  
AWS implementation of data ingestion pipelines for cloud training and inference endpoints.  
Responsible for full development and integration of computer vision models onto commercial edge products.  
Responsible for development of sensor fusion and machine learning ensemble algorithms. Novel algorithm engineering for attention mechanisms in hardware-aware signal processing.  
Built an automatic two-stage Bayesian Optimization pipeline for hyper- and preprocessing-parameter tuning.  
Optimized computer vision implementations for the Omnipixel OA7000 chip.  
ML Compiler and inference engine optimizations for MLIR/TFLM.
- **Junior Software Developer** - Responsible for planning and executing a full machine learning development cycle for an upcoming product.  
Data collection, data labeling, data cleaning, feature selection, data

splitting, metrics and statistics, network architecture selection for EFR32, hyperparameter tuning, evaluation, integration into device and pre-certification support.

Responsible for projecting and building an automated image data collection pipeline. Performing installations at pilot's properties in Spain for said collection.

Assisting in development of algorithms for recursive channel-pruning of ResNet/YOLO-architectures in PyTorch for size reduction.

Responsible for setting AI execution requirements for third parties, responsible for integration of vision models onto NXP RT1060.

- **Thesis Worker** - Working on Masters thesis "Image classification for improving an IR-signal classification in a self-supervised learning pipeline". Collecting data, labeling data, coding additions to in-house labeling software.
- **Engineering Support** - Part of the Cameras & Frontdoor development team. Responsible for modifying hardware by soldering and connecting to relay-cards in order to facilitate remote automated tests. Responsible for writing automated tests using an in-house Python framework.

### **Sony Nordic, Lund – Hourly Employee**

August 2019 – June 2021

- Part-time assistant at project Advagym by Sony. User testing and bug testing of hard- and software. Distributing and installing the hardware at gyms in Sweden, Denmark and Germany. Minor software work on string interpretation.

### **Sony Mobile Communications, Lund – Hourly Employee**

March 2019 – August 2019

- Part-time assistant at project Advagym by Sony. User testing and bug testing of hard- and software. Distributing and installing the hardware at gyms in Sweden, Denmark and Germany.

### **Lund University, Lund – Teaching Assistant**

January 2018 – March 2019

- Teaching assistant in the course 'Introduction to Java'. Helping and grading the first-year students in several labs as well as supervising a midterm exam.

## **EDUCATION**

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## **LTH Computer Science, Lund – 2022**

August 2018 – June 2022

Engineering computer science masters programme at Faculty of Engineering (LTH). Specialization - Images and Computer Graphics.

### **Master's thesis**

Image classification for improving an IR-signal classification in a semi-supervised learning pipeline

## **LTH Nanoscience, Lund – 2018**

June 2016 – June 2018

Engineering nanoscience masters programme at Faculty of Engineering (LTH).

## **QUALIFICATIONS**

- Class B Drivers License
- English C1 Certificate

## **LANGUAGES**

- Swedish, English, Russian - Fluent
- French, Japanese - Basic
- Python, C++, C - Ordered in descending skill order.