Nikita Zozoulenko

Curriculum Vitae

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Education

2018–present **KTH Royal Institute of Technology**, *Engineering Physics*, GPA 5.0/5.0.

2015–2018 **Katedralskolan in Linköping**, *High school, specialization in the natural sciences (NANAT)*, GPA 21.8/22.5. During my final year I read linear algebra at Linköping University.

2011–2015 **International English School in Linköping**, *School year 6–9*.

Work Experience

June 2018 – August 2018 **Machine Learning Engineer**, ContextVision AB, Linköping.
I worked in the field of digital pathology and developing new instance segmentation algorithms to detect cancer in hematoxylin and eosin stained medical images. During my employment I wrote a paper named *Gland Instance Segmentation Through Overlapping Contour Regions and Random Transformation Sampling*.

Summer 2017 **Museum Guide, Animal Handler and Gardener**, Open-air Museum Gamla Linköping, Linköping.
During the day I acted as a museum guide. During the mornings before we opened the museum I worked in the garden and tended to the museum's various animals.

Summer 2016 **Junior Consultant**, AB Stångåstaden, Linköping.
I worked as a group leader together with other junior consultants to find creative and innovative solution to problems facing Stångåstaden's real estate.

Computer Skills

Languages Python, C++, Java, GLSL

OS Linux, Windows

Frameworks Pytorch, TensorFlow, OpenGL, LaTeX

Languages

Swedish Fluent

English Fluent

Russian Good translation skills in speech

Spanish High school level, basic conversation and text

Awards and Distinctions

Mars 2018 **Winner in *Utställningen Unga Forskare* (english: Exhibition Young Scientists)**, Sweden.
It was a national pre-collage science and engineering fair where Sweden's best pre-collage students competed with their science or engineering projects. I entered with my machine learning project *Dense Face Detection* and won the first prize to represent Sweden internationally in the world biggest science and engineering fair, Intel ISEF, together with 2 other students.

May 2018 **Intel Interational Science and Engineering Fair Finalist**, USA.
Intel ISEF is the worlds best biggest science and engineering fair where 1.8 million people all over the world have competed for the best 1800 to reach the final. I had the honor of receiving and winning one grand prize and two special prizes:
- 1:st award from *Association for the Advancement of Artificial Intelligence*
- 3:rd award in the category of *Robotics and Intelligent Machines*
- 4:th award from *Association for Computing Machinery*

June 2018 **Tre Bröders Scholarship**, Linköping.
A scholarship for distinctions in studies in mathematics.

June 2018 ***Framtidsstipendiet* (english: The Future Scholarship) from Östsvenska Handelskammaren**, Linköping.
A scholarship awarded to me for my development of a mathematical model for face detection in big crowds.

Personal Projects

October 2018 **AlphaZero Pytorch Implementation**.
Open source PyTorch implementation of a single threaded self play reinforcement learning agent with Monte Carlo Tree Search (MCTS). The model was used to learn $n \times n$ tic-tac-toe with arbitrary size n.

August 2018 **Rubiks Cube Agent**.
A Rubik's Cube reinforcement learning agent. Trained without any human knowledge to solve any arbitrary cube by learning to predict the outcome of a Monte Carlo Tree Search predicting the Q-value of a certain action. Learned to solve any 2×2 cube in an average time of 2.5 seconds.

July 2018 **Gland Instance Segmentation Through Overlapping Contour Regions and Random Transformation Sampling**.
This paper was written during my employment at ContextVision AB. I developed an algorithm for instance segmentation of glands in hematoxylin and eosin stained medical images with limited data using random transformation sampling.

May 2018 **Improving Temporal Convolutional Networks**.
I improved temporal convolutional neural networks and compared them to the traditional long short-term memory LSTM networks on the task of automatic image captioning.

Mars 2018 **Real-time Style Transfer**.
A collaborative Python and JavaScript project where the content of a camera stream gets transferred into a given artistic style in real time using style transfer, convolutional neural networks and a website GUI.

Mars 2018 **Dense Face Detection**.
My winning project for *Utställningen Unga Forskare*, using state of the art object detection algorithms. The final model is able to detect hundreds of faces in different shapes and sizes, in real time.

Other

I believe that a balanced lifestyle is important in life, and that character development is just as important as academic or professional development. That is why I try to be as active as i can outside of my studies and work. In my free time when I'm not working on personal projects I like to sing in a choir and train at least three times a week. My interests include music, training, personal development, artificial intelligence, nature and meeting new interesting people.

References

- **Martin Hedlund.** Chief Technology Officer (CTO) and co-founder of ContextVision AB
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- **Gabriel Skantze**, Professor in Speech Communication and Technology at KTH Royal Institute of Technology.
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