## Personal Details


| | | | |
|---|---|---|---|
| **Name** | Philipp Gysel | **Telephone** | +41 77 474 13 65 |
| **Address** | Burgerallee 43, 2560 Nidau, Switzerland | **Birthday** | 1. June 1990 |
| **Email** | pmgysel@ucdavis.edu | **Civil status** | Single |
| **Homepage** | http://lepsucd.com/?page_id=327 | **Nationality** | Switzerland |


## Goal

I seek a position as Software Engineer, preferably in the area of machine learning or data science. I completed my master's degree in California, in electrical engineering. My research during my studies focused on artificial intelligence and image detection for embedded devices. More specifically, I worked on reducing the resource requirements for artificial intelligence algorithms. Later I joined Qualcomm Research, where I worked on making image detection faster and more efficient on smartphones. I have a passion for machine learning and for my next job position, I want to deepen my knowledge in finding trends in data.

## Work Experience

09/2016-09/2017 **Qualcomm Research, San Diego CA, USA: Software Engineer** (13 months)

- Research in the area of deep learning and hardware acceleration
- Enable energy efficient image and speech recognition on Qualcomm's Snapdragon chip
- Compression of Neural Networks (fixed point, architecture learning, singular value decomposition)
- Software tools and programming languages: C++, Python, Caffe, TensorFlow
- Work in close collaboration with the research team and hardware team

## Graduate Research

09/2014-05/2016 **Master's Thesis: "Ristretto: Hardware-Oriented Approximation of Deep Convolutional Neural Networks"**
My thesis focused on the hardware acceleration of deep learning algorithms. Convolutional neural networks (CNN) have achieved state-of-art performance in many image processing applications. I worked on reducing the resource demands of CNN inference by using reduced precision arithmetic. CNNs with reduced precision take up fewer memory and require less computational power, which allows to use deep learning on embedded systems.

09/2015-06/2016 **Open Source Project Ristretto** (Link)

- Automated approximation of convolutional neural networks (CNN)
- Companies like Qualcomm, Intel, Xilinx, Cadence, Samsung use Ristretto or experimented with the tool
- Ristretto shows that large scale image classification is possible using only 8-bit fixed point

## Education

09/2014-06/2016 **Master of Science in Electrical and Computer Engineering, University of California, Davis, USA** (2 years)

- Master's thesis: Hardware acceleration of neural networks under supervision of Professor Soheil Ghiasi
- Coursework: Artificial Intelligence, Parallel Algorithms, High Performance Computer Architecture, VLSI Digital Signal Processing, and other courses (GPA: 4.0/4.0)

09/2009-08/2012 **Bachelor of Science in Electrical Engineering, Bern University of Applied Sciences, Switzerland** (3 years)

- Thesis: Development of a test bench for programmable logic controllers (PLCs) from Selectron AG
- Coursework: Analysis, Linear Algebra, Physics, Informatics, Networks and Circuits, High Voltage Techniques, Modern Power Converters, EMC (rank 5 of 66 students)

## Additional Work Experience

06/2013-07/2014 **SIX Payment Services (previously Rolotec), Biel, Switzerland: Embedded Software Engineer** (14 months)
- Application software development in C and C++ for EFTPOS transactions

08/2012-09/2012 **Technion, Israel: Internship** (2 months)
- Runtime optimization of a tracking algorithm for ultrasound clips using Matlab and MEX

## Publications

05/2016 P. Gysel, M. Motamedi, S. Ghiasi. **"**Hardware-Oriented Approximation of Convolutional Neural Networks**"**. ICLR Workshop, Puerto Rico, 2016.

01/2016 M. Motamedi, P. Gysel, V. Akella, S. Ghiasi. **"**Design Space Exploration of FPGA-Based Deep Convolutional Neural Networks**"**. ASP-DAC, Macau, 2016.

(Under review) P. Gysel, J. Pimentel, M. Motamedi, S. Ghiasi. **"**Ristretto: A Framework for Empirical Study of Resource-Efficient Inference in Convolutional Neural Networks**"**. IEEE Transactions on Neural Networks and Learning Systems, 2017.

## Language Skills

| | |
|---|---|
| German | Native speaker |
| English | Excellent command |
| French | Good command |

## Programming Languages and Software Tools

C/C++, Java, Python, CUDA, Matlab, Caffe, TensorFlow, Git

## Interests and Voluntary Work

Now **Sports**: Running (half marathon), squash, badminton

2013&2014 **Outreach project in Moldova** (2 weeks)
- Construction of orphanage, summer camp with kids

From 2006 **Cevi scouts Switzerland** (5 years)
- Leader of children programs in nature; summer camps