

CONTACT  
INFORMATION

Place du Petit-Saint-Jean 13  
1700 Fribourg  
Switzerland

31, married, Swiss nationality  
☎ +41 79 645 67 04  
@ gabriel.cuendet@protonmail.ch  
in ch.linkedin.com/in/gcuendet

QUALIFICATIONS  
AND INTERESTS

Image analysis, image processing, pattern recognition, computer vision, machine learning, artificial intelligence, 2D/3D face models, biomedical engineering

## EDUCATION

Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

**Ph.D., Electrical Engineering**, expected summer 2017

- Thesis Topic: Facial Images Analysis Applications in Medical Domains
- Adviser: Prof. Jean-Philippe Thiran

**M.S., Electrical Engineering**, July 2012 GPA: 5.56 (6.0 scale)

- Thesis Topic: Difficult Intubation Assessment from Video
- Area of Study: Major in **information technologies** and minor in **biomedical technologies**

PROFESSIONAL  
EXPERIENCE

**Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland**

Research assistant

**September 2012 to present**

Objective Automatically predict difficulty of intubation and develop a new 3D face model

Mission Conduct research, collect data in hospitals, develop a C++ library for facial images analysis, record and align a 3D database of faces, supervise students in projects related to facial images analysis

Technologies C++, Python, Face Alignment (AAM, CLM, SDM, LBF), Machine Learning, 3D Geometry, Spectral Mesh Processing, 3D Face Models

Results EU Patent application, scientific publications

Teaching assistant

**September 2008 to June 2011**

- Teaching Assistant for the courses and labs: Introduction to electrical engineering, Measurement Systems, Programming (C++)

**IBM Research, Zurich, Switzerland**

Research intern

**September 2015 to February 2016**

Objective Automatically extract numerical data from scientific charts images

Mission Conduct research, collect and organize data, develop and test code, write a scientific article and a patent application

Technologies C++, Python, Image Processing, Machine Learning, Markov Logic Network

Results US Patent application, conference article submission, post-doc position opening to continue the project

**ABB, Corporate Research Center, Bangalore, India**

Intern

**July 2010 to September 2010**

Objective Reduce the use of big temporary objects at execution time in order to achieve real-time simulation of electrical systems

Mission Performed simulations and explored advanced concepts of C++

Technologies C++, expression templates, template meta-programming

Results Internship report containing preliminary results

## SKILLS

### Computer Programming:

- C, C++, CMake, OpenCV library, Python, Scikit-learn and NumPy libraries, MATLAB, Bash, T<sub>E</sub>X (L<sup>A</sup>T<sub>E</sub>X, B<sub>I</sub>B<sub>T</sub>E<sub>X</sub>)

### Languages:

- French: mother tongue
- English: Excellent knowledge (professional language since 2010)
- Swedish: Good knowledge (exchange year in Sweden, 2002-2003)
- German: School knowledge (9 years courses)

## REFEREED JOURNAL PUBLICATIONS

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- [1] A. Yüce, H. Gao, **G. L. Cuendet**, J.-P. Thiran. Action Units and Their Cross-Correlations for Prediction of Cognitive Load during Driving. IEEE Transactions on Affective Computing, Jun. 2016  
doi:10.1109/TAFFC.2016.2584042
- [2] **G. L. Cuendet**, P. Schoettker, A. Yüce, M. Sorci, H. Gao, C. Perruchoud, and J.-P. Thiran. Facial image analysis for fully automatic prediction of difficult endotracheal intubation. IEEE Transactions on Biomedical Engineering, vol. 63, pp. 328-339, Feb. 2016.  
doi:10.1109/TBME.2015.2457032

## CONFERENCE PUBLICATIONS

- [3] **G. L. Cuendet**, A. Yüce, J.-P. Thiran, M. Sorci, P. Schoettker and C. Perruchoud. Automatic Mallampati Classification Using Active Appearance Models. ICPR International Workshop on Pattern Recognition for Healthcare Analytics, 2012.

## PATENTS

- [4] P. Schoettker, **G. L. Cuendet**, C. Perruchoud, M. Sorci and J.-P. Thiran. Difficult intubation or ventilation prediction system. Patent pending at the European Patent Office, October 2013.

A complete list of publications can be found on <https://gcuendet.github.io/publications/>

## AWARDS

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Institute for Pure & Applied Mathematics (IPAM), UCLA, Los Angeles, USA

- Full grant for attending the Graduate Summer School: Computer Vision, Summer 2013

## EXTRA- CURRICULAR

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**Certificat amateur de violon (certificate of violin amateur studies) June 2009**  
Conservatoire de Fribourg, Switzerland

### Chamber music

**2009 to present**

- Violinist of the "Chromatique" piano trio. We perform public concerts in the french speaking part of Switzerland, playing the classical and romantic repertoire.
- Chamber music master classes in Blonay with amongst others: Paul Cocker, Joel Marosi or the Trio Lenitas.

### Orchestra musician (OSUL)

**2012 to present**

- Violinist in the Lausanne symphonic university orchestra. The orchestra gives 3 concerts per year and plays the romantic and modern repertoire for large symphonic orchestra.

## REFERENCES

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Available upon request.