Gabriel **Cuendet**

Post-doctoral researcher · Computer Vision & Machine Learning

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Summary

Research scientist in Computer Vision and Machine Learning, proficient in C++, and motivated team player looking for opportunities to contribute to fascinating projects in the industry by developing and implementing new algorithms and methods.

Education

Ph.D., Electrical Engineering — *Lausanne, Switzerland*

Ecole Polytechnique Fédérale de Lausanne (EPFL) — *Expected Summer 2017*

- Thesis Topic: *Towards 3D facial morphometry: facial image analysis applications in anesthesiology and 3D spectral nonrigid registration*
- Adviser: Prof. Jean-Philippe Thiran

M.S., Electrical Engineering **GPA: 5.56 (6.0 scale)** — *Lausanne, Switzerland*

Ecole Polytechnique Fédérale de Lausanne (EPFL) — *July 2012*

- Thesis Topic: 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) — *Lausanne, Switzerland*

Research assistant — *September 2012 to present*

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

Mission: Conduct research in collaboration with CHUV and nViso, 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 — *Zürich, 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

Programming Languages

C++, Python, OpenCV library, CMake, Scikit-learn and NumPy libraries, MATLAB, Bash, TEX (LATEX, BIBTEX)

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)

Awards

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

FULL GRANT FOR ATTENDING THE GRADUATE SUMMER SCHOOL: COMPUTER VISION *Summer 2013*

Selected Publications

Refereed Journal Publications

[1] **G. L. Cuendet**, C. Ecabert, M. Zimmermann, H. K. Ekenel, J.-P. Thiran. 3D Spectral Nonrigid Registration of Facial Expression Scans. *submitted to IEEE Transactions on Visualization and Computer Graphics*, April 2017

[2] 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

[3] **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

Patents

[1] **G. L. Cuendet**, P. Staar, M. Gabrani and K. Bekas. A method and a system to fully-automatically and quantitatively analyze technical diagrams. Patent to be filed at the US Patent Office.

[2] 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/

Extra-curricular

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

CONSERVATOIRE DE FRIBOURG *June 2009*

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 Switzerland and Germany with amongst others: the Mandelring quartet, 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

Available upon request