



# Alireza Ghasemi

Zürich – Switzerland

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Born 1987, Iranian citizen, Swiss B permit holder.

## Education

**École Polytechnique Fédérale de Lausanne**

*PhD, Computer and Communication Sciences*

**Lausanne, Switzerland**

*September 2011 – December 2016*

**Sharif University of Technology**

*M.Sc., Artificial Intelligence*

**Tehran, Iran**

*September 2009 – August 2011*

**Sharif University of Technology**

*B.Sc., Software Engineering*

**Tehran, Iran**

*September 2005 – September 2009*

## Selected Professional Experience

**ELCA Informatik AG**

*Senior Engineer/Data Scientist*

**Zürich, Switzerland**

*September 2018 – Present*

Moved to our Zurich offices, starting a new series of adventures in Data analysis and engineering.

**ELCA Informatique SA**

*Software Engineer and Data Scientist*

**Lausanne, Switzerland**

*January 2017 – August 2018*

Projects spanning a variety of sectors aiming to collect, organise, efficiently retrieve, gain insight from, and make sense of data in different volumes and a variety of modalities, including audio, visual, and text information.

**École Polytechnique Fédérale de Lausanne**

*Doctoral Researcher - R&D Engineer*

**Lausanne, Switzerland**

*September 2011 – December 2016*

In charge for cutting-edge research in the areas of image retrieval, multi-camera systems, video analysis and image-based localization. I developed mainly in MATLAB, Java, JavaScript and Python.

- Developed a patent and a track record of publications in light-field image retrieval and video analysis.
- Participating as an R&D engineer in the development of an outdoor urban localization system.
- Developed a novel online game (using Play! and RESTful services) to exploit human computation paradigms in sentiment analysis.

**Swiss Center for Electronics and Microtechnology (CSEM)**

*R&D Intern*

**Neuchâtel, Switzerland**

*October 2015 – March 2016*

In charge of developing novel cutting-edge solutions for hyper-spectral imaging.

## Skills

**Data Science & AI:** Expert in Machine Learning (TensorFlow, Keras, XGBoost, LIME, DL4J), Natural Language Processing (Spacy, NLTK, CoreNLP, Transformers), Time-Series Prediction, Computer Vision.

**Software Engineering:** Expert in Java (JavaFX, Vaadin, JDBC, Spring), and Python (Data Analysis, Visualisation, and Web Frameworks). Experienced in Scala. Working knowledge in Android development

**Data Engineering & Databases:** Experienced in Apache Spark, Kafka, Hadoop, SQL, ERD, NoSQL (MongoDB, Firebase), Teradata, Oracle.

**Web Application Development:** Experienced in Node.js, Chrome extensions, client-side scripting, REST service development, Play!, . . .

**Image & Signal Processing:** Expert in Multi-Camera Image Analysis, 3-D Reconstruction, Camera & Visual Localisation, Super-resolution (OpenCV, MATLAB).

**Scientific Computing:** Expert in Numerical & Black-box Optimisation, Convex & Non-Convex problems (MATLAB, Python, R)

## Languages

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**Persian:** Native

**German:** B2. Learning. Working proficiency

**English:** C1. Full professional proficiency

**French:** B1. Limited working proficiency

## Selected Publications and Patents

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**Method and Apparatus for Identifying Local Features:** *Alireza Ghasemi*; Laurent Rime; Martin Vetterli, US Patent 9,613,256, Granted Apr. 2017.

**Point and Sensor Estimation from Images:** Martin Vetterli; *Alireza Ghasemi*; Adam Scholefield, US Patent Application 15/275,973, Filed Sep. 2016.

**Bound and Conquer: Improving Triangulation by Enforcing Consistency:** Adam Scholefield; *Alireza Ghasemi* and Martin Vetterli, IEEE Transactions on Pattern Analysis and Machine Intelligence vol. 42, no. 9, pp. 2321-2326, 1 Sept. 2020 (Early access Sep. 2019)

**SHAPE: Linear-Time Camera Pose Estimation With Quadratic Error-Decay:** *Alireza Ghasemi*; Adam Scholefield and Martin Vetterli, IEEE ICASSP 2016. Shanghai, China

**On the Accuracy of Point Localisation in a Circular Camera Array:** *Alireza Ghasemi*; Adam Scholefield and Martin Vetterli, IEEE International Conference on Image Processing (ICIP), 2015. (*Chosen in the top 10% papers*)

**A Bayesian Approach to the Data Description Problem:** *Alireza Ghasemi et. al.*, AAAI Twenty-Sixth Conference on Artificial Intelligence (AAAI-12), 2012

## Selected Honors and Awards

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**Bonus for Exceptional Performance:** EPFL School of Information and Communication Sciences, Fall 2015

**Qualcomm Innovation Fellowship 2015:** Qualcomm, Fall 2015

**1<sup>st</sup> rank in the Artificial Intelligence section:** Sharif University, Summer 2011

**183<sup>rd</sup> rank (top %0.06) in the nationwide university entrance exam:** Summer 2015

**Travel Grant:** IEEE Signal Processing Society, Spring 2015

**Doctoral Fellowship:** EPFL School of Information and Communication Sciences, Fall 2011

**1<sup>st</sup> rank in the nationwide graduate entrance exam:** IT Engineering section, Summer 2009

## Interests

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**Reading:** Literature, History, Technology. Gaining general knowledge through studying novel topics.

## References

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Available upon request