Alireza Ghasemi

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Born 1987, Swiss-Iranian citizen

Education

École Polytechnique Fédérale de Lausanne — **Lausanne, Switzerland**
PhD, Computer and Communication Sciences — *September 2011 – December 2016*

Sharif University of Technology — **Tehran, Iran**
M.Sc., Artificial Intelligence — *September 2009 – August 2011*

Sharif University of Technology — **Tehran, Iran**
B.Sc., Software Engineering — *September 2005 – September 2009*

Selected Professional Experience

Swisscom — **Bern/Zürich, Switzerland**
Expert AI Engineer — *July 2021 – Present*
A small gear in the huge machinery of the infrastructure analytics at Swisscom, working towards enabling data-driven decision making and maintenance.

ELCA Informatik AG — **Lausanne & Zürich, Switzerland**
Expert Data Scientist/Engineer — *January 2021 – June 2021*
Becoming even more engaged in all aspects of data-driven projects, from conception to maintenance.

Senior Engineer/Data Scientist — *September 2018 – January 2021*
Moved to our Zurich offices, starting a new series of adventures in data analysis and engineering.

Software Engineer and Data Scientist — *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 — **Lausanne, Switzerland**
Doctoral Researcher - R&D Engineer — *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.
- Participated 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) — **Neuchâtel, Switzerland**
R&D Intern — *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.

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!, ...

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

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

Persian: Native

English: C1. Full professional proficiency

German: B2. Learning. Working proficiency

French: B1. Limited working proficiency

Selected Publications and Patents

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 Trans. Pattern Anal. Mach. Intell. (PAMI), 42(9), 2321-2326, Sep. 2020.

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

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

Qualcomm Innovation Fellowship 2015: Qualcomm, Fall 2015

1^{st} rank in the Artificial Intelligence section: Sharif University, Summer 2011

183^{rd} rank (top %0.06) in the nationwide university entrance exam: Summer 2005

Travel Grant: IEEE Signal Processing Society, Spring 2015

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

1^{st} rank in the nationwide graduate entrance exam: IT Engineering section, Summer 2009

Interests

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

Notes

Updated March 2024. References available upon request.