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# ALIREZA GHASEMI

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## 1 Personal Information

- Born at April 18<sup>th</sup>, 1987, Esfahan, Iran.

## 2 Research Interests

- Computer Vision and Image Processing (Content-Based Image Retrieval, Video Analysis, Light-Field Imaging, Augmented Reality)
- Machine Learning and Pattern Recognition (Semi-Supervised and Active Learning, One-Class Learning, Multi-view Learning)
- Information Retrieval and Data Mining (Text Classification, Rank and Metric Learning)

## 3 Education

- PhD Student of Computer and Communication Sciences, École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, 2011-Present
  - *Thesis Title:* Content-Based Image Retrieval Using Relevance Feedback and Semi-Supervised Learning
    - \* Grade:  $\frac{20}{20}$
  - *Overall GPA:*  $\frac{19.52}{20}$
- B. Sc. in Computer Engineering, Sharif University of Technology, Tehran, Iran, 2005-2009
  - *Major:* Software Engineering
  - *Overall GPA:*  $\frac{17.48}{20}$
  - *Last year's GPA:* Fall:  $\frac{19.56}{20}$  Spring:  $\frac{17.48}{20}$

## 4 Honors and Awards

- Granted Full One-Year Fellowship to Start PhD at École Polytechnique Fédérale de Lausanne, Starting from Fall 2011.
- Ranked 1<sup>st</sup> by GPA Among All Artificial Intelligence Students in Sharif University of Technology, Summer 2011.

- Ranked 1<sup>st</sup> in Nationwide Graduate Entrance Qualification Exam in Artificial Intelligence Branch of Computer Engineering, Among more than 17000 applicants (Overall Rank 2), Spring 2009.
- Ranked 1<sup>st</sup> in Nationwide Graduate Entrance Qualification Exam in Computer Networks Branch of IT Engineering, Among more than 13000 applicants (Overall Rank 1), Spring 2009.
- Ranked 5<sup>th</sup> in First Round of Scientific Students' Olympiad, Computer Engineering, (Ranked 13<sup>th</sup> in Final Round), Summer 2009.
- Honorary Admission for Graduate Study in Sharif University of Technology, Fall 2008.
- Ranked 183<sup>rd</sup> in Nationwide University Entrance Exam (Among more than 300000 students), Mathematics and Physics Discipline, Summer 2005.
- Ranked 33<sup>rd</sup> in Nationwide University Entrance Exam, Foreign Languages Discipline (Among more than 500000 students), Summer 2005.

## 5 Publications

### 5.1 Patents

- **Alireza Ghasemi**, Laurent Rime, Martin Vetterli, *Distinguishing real scenes from printed photos using a light-field camera*. US-61898739, Provisional Patent Filed November 2013.
- **Alireza Ghasemi**, Laurent Rime, Martin Vetterli: *Method and Apparatus for Identifying Local Features*. Swiss Patent No. 2013CH-1102, Filed June 2013.

### 5.2 Papers

- **Alireza Ghasemi** and Martin Vetterli: *Detecting Planar Surface Using a Light-Field Camera with Application to Distinguishing Real Scenes From Printed Photos*. ICASSP 2014, Florence ,Italy.
- **Alireza Ghasemi**, Mahdad Hosseini Kamal and Martin Vetterli: *Computationally Efficient Background Subtraction in the Light Field Domain*. IS&T/SPIE Electronic Imaging 2014, San Francisco. California, USA, February 2-6, 2014.
- **Alireza Ghasemi**, Nelly Afonso and Martin Vetterli: *LCAV-31: A Dataset for Light Field Object Recognition*. IS&T/SPIE Electronic Imaging 2014, San Francisco. California, USA, February 2-6, 2014.
- **Alireza Ghasemi** and Martin Vetterli,: *Scale-Invariant Representation of Light Field Images for Object Recognition and Tracking*. IS&T/SPIE Electronic Imaging 2014, San Francisco. California, USA, February 2-6, 2014.
- Claudiu Cristian Musat, **Alireza Ghasemi**, Boi Faltings: *Sentiment Analysis Using a Novel Human Computation Game*. ACL 2012 People's Web Meets NLP Workshop, 2012.
- **Alireza Ghasemi**, Hamid R. Rabiee, Mohammad T. Manzuri, Mohammad H. Rohban: *A Bayesian Approach to the Data Description Problem*. AAAI Twenty-Sixth Conference on Artificial Intelligence (AAAI-12), 2012
- Amirhossein Tavanaei, **Alireza Ghasemi**, Mohammad Tavanaei, Hossein Sameti, Mohammad T. Manzuri: *Support Vector Data Description for Spoken Digit Recognition*. International Conference on Bio-inspired Systems and Signal Processing (BIOSIGNALS 2012), 2012:32-37.
- **Alireza Ghasemi**, Hamid R. Rabiee, Mohsen Fadaee, Mohammad T. Manzuri, Mohammad H. Rohban: *Active Learning from Positive and Unlabeled Data*. IEEE ICDM 2011 Workshop on Optimization Based Methods for Emerging Data Mining Problems (OEDM'11), 2011:244-250.
- **Alireza Ghasemi**, Mohammad T. Manzuri, Hamid R. Rabiee, Mohammad H. Rohban, Siavash Haghighi: *Active One-Class Learning by Kernel Density Estimation*. IEEE International Workshop on Machine Learning for Signal Processing (MLSP'11), 2011:1-6.

### 5.3 Reports

- *Feature Identification and Tracking in the Plenoptic Space*, Candidacy Report for the Doctoral Program in Computer and Communication Systems, Under Supervision of Prof. Martin Vetterli, Summer 2012.
- *Content-Based Image Retrieval Using Relevance Feedback and Semi-Supervised Learning*, M. Sc. Thesis, Under Supervision of Dr. Mohammad Taghi Manzuri, Summer 2011.
- *A Survey on Website Classification Methods with Introduction to a New Method Based on Internal PageRanks*, B.Sc. Thesis, Under Supervision of Dr. Hassan Abolhassani, Summer 2009.

### 5.4 Poster Presentations

- **Alireza Ghasemi**, Julien Lalande, Laurent Rime, Martin Vetterli, *Light-Field/Plenoptic Image Processing - Principles*. Research Day of the EPFL School of Computer and Communication Sciences, June 2014.
- **Alireza Ghasemi**, Julien Lalande, Laurent Rime, Martin Vetterli, *Light-Field/Plenoptic Image Processing - Applications*. Research Day of the EPFL School of Computer and Communication Sciences, June 2014.

## 6 Some Courses Passed

- Doctoral School <sup>1</sup>
  - **Candidacy Requirement Course:** Foundations of Imaging Sciences(6.0)
  - **Optional Courses:** Convex Optimization(5.5), Statistical Signal Processing(5.5)
- Graduate Courses <sup>2</sup>
  - **Fundamentals:** Image Processing(19.2), Stochastic Processes(19), Speech Processing(19)
  - **Machine Learning:** Machine Learning(19.2), Pattern Recognition(19.5), Human and Computer Vision(20)
  - **Soft Computing:** Neural Networks and Fuzzy Systems(20), Computational Intelligence(18.9)
- Undergraduate Courses<sup>3</sup>
  - **Basic Courses:** Advanced Programming(20), Discrete Structures(18.5), Electric Circuits(20)
  - **Mathematics:** Probability and Statistics(17.5), Numerical Methods(19), Computer Simulation(19.5), Engineering Mathematics(16.8)
  - **Computer Science and Systems:** Theory of Machines and Languages(17.8), Computer Networks(19.2), Network Security(18.3), Compiler Design(20), Programming Languages (20)
  - **Software Engineering:** Database Systems(18.5), Object-Oriented Design (18.8), System Analysis and Design(20), Software Engineering(19)
  - **Artificial Intelligence:** Artificial Intelligence(20), Signals and Systems (20), Information Retrieval(20)

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<sup>1</sup>Grades out of 6

<sup>2</sup>Grades out of 20

<sup>3</sup>Grades out of 20

## 7 Teaching Experience

- As Lecturer:
  - Instructor of "*Advanced Programming*" at Payam-e-Noor University of Qeshm, Fall 2009.
  - Instructor of "*Introduction to Programming*" at Payam-e-Noor University of Qeshm, Fall 2009.
- As Assistant:
  - Teaching Assistant in "*Digital Signal Processing*" Offered as Online Course on the Coursera Platform, Instructed by Dr. Paolo Prandoni & Prof. Martin Vetterli, Spring 2014.
  - Teaching Assistant in "*Mathematical Foundations of Signal Processing*"<sup>4</sup> at École Polytechnique Fédérale de Lausanne, Instructed by Dr. Mihailo Kolundžija, Dr. Jayakrishnan Unnikrishnan & Prof. Martin Vetterli, Fall 2013.
  - Teaching Assistant in "*Statistical Signal processing through Applications*"<sup>5</sup> at École Polytechnique Fédérale de Lausanne, Instructed by Dr. Andrea Ridolfi and Dr. Mihailo Kolundžija, Spring 2013.
  - Teaching Assistant in "*Informatique I*" at École Polytechnique Fédérale de Lausanne, Instructed by Dr. Jean-Philippe Pellet, Fall 2012.
  - Teaching Assistant in "*Statistical Pattern Recognition*"<sup>6</sup> at Sharif University of Technology, Instructed by Dr. Hamid Reza Rabiee, Spring 2011.
  - Teaching Assistant in "*Computer Simulation*" at Sharif University of Technology, Instructed by Dr. Jafar Habibi, Fall 2010.
  - Teaching Assistant in "*Database Systems*" at Sharif University of Technology, Instructed by Prof. M.T. Rouhani Rankoohi, Spring 2010 - Fall 2010.
  - Teaching Assistant in "*Database Systems*" at Shahid Beheshti University, Instructed by Prof. M.T. Rouhani Rankoohi, Spring 2010.
  - Teaching Assistant in "*Advanced Programming*" at Sharif University of Technology, Instructed by Mr. Soheil Hassas Yeganeh, Spring 2007.
  - Teaching Assistant in "*Introduction to Programming*" at Sharif University of Technology, Instructed by Mr. Ehsan Nazerfard, Spring 2006 - Spring 2007.

## 8 Skills

- Human Languages
  - *Persian*: Native
  - *English*: Fluent
    - \* TOEFL iBT : 104/120
  - *French*: Intermediate ( $\sim$  A2/B1)
  - *German*: Beginner ( $\sim$  A1)
  - *Arabic*: Basics
- Programming Languages
  - Proficient in the Java Programming Language.
  - Fluent in C/C++, JavaScript, PHP and Matlab, Familiar with Groovy.
  - Experienced in SQL.
  - Familiar with Prolog and Lisp.
- Fluent and Experienced in the L<sup>A</sup>T<sub>E</sub>X Typesetting System and Language.
- Experienced in Web Application Development: Symfony, Spring, Struts2, GWT, Grails, ...

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<sup>4</sup>Graduate Course

<sup>5</sup>Graduate Course

<sup>6</sup>Graduate Course

## 9 References

Available upon request