

# Andrei BURSUC

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11<sup>th</sup> January 1985



## Interests

Domains Computer Vision, Deep/Machine Learning, Image Processing

Research Visual search, deep neural networks, visual descriptors, video understanding, crowd analysis, search engines

Personal Volunteering, education, reading, hiking, traveling

## Education

2012 **Doctorat ParisTech, PhD**, *Mines ParisTech*, Paris, France.

- Specialization: Real time informatics, robotics and automation
- Thesis title: *Object based visual content indexing and retrieval*
- Advisors: Françoise PRETEUX and Titus ZAHARIA

2004 – 2009 **Engineer's Degree**, *POLITEHNICA University of Bucharest*, Faculty of Electronics, Telecommunications and Information Technology, Bucharest, Romania.

- Specialization: Networks and Telecommunications Software
- Ranked 12<sup>th</sup> out of 248 students

## Professional experience

2016 – **Research Scientist**, *Safran Tech*, Chateaufort, France.

2015 – 2016 **Postdoctoral researcher**, *Inria Paris*, Willow Team within the Department of Computer Science of the Ecole Normale Supérieure, Paris, France.

- Working with Josef SIVIC and Ivan LAPTEV within FUI FluidTracks project
- Research on crowd analysis (density estimation, event recognition) from video content by means of deep neural networks

2014 – 2015 **Postdoctoral researcher**, *Inria Bretagne*, TEX-MEX Team, Rennes, France.

- Working with Hervé JEGOU within ANR FIRE-ID project
- Research on visual descriptors for images and local features using match kernel embeddings
- Study of intrinsic dimensionality of visual descriptors for retrieval in large image collections using approximate nearest neighbors algorithms

- 2013 – 2014 **Postdoctoral researcher**, *Télécom SudParis*, ARTEMIS Team, Evry, France.
- Working with Titus ZAHARIA
  - AAL-ANR ALICE project (*Assistance for Better Mobility and Improved Cognition of Elderly Blind and Visual Impaired*):
    - Research on algorithms for real-time obstacle detection on mobile devices weared by visually impaired persons
    - Designed techniques for the recognition of objects of interest and city landmarks in pictures or videos captured with the cameras from mobile devices (leveraging Google Street View data)
    - Attending project meetings, writing deliverables, responsible of project dissemination
  - *FUI SmartCity+ project*:
    - Elaboration of a text-based search engine for city related data: documents belonging to public institutions, hospitals, public transport, crowd-sourced user generated data
- 2009 – 2012 **Research engineer**, *Télécom SudParis*, ARTEMIS Team, Evry, France.
- *Ubimedia Joint Lab between Institut Télécom and Alcatel-Lucent Bell Labs*:
    - Research on modeling visual content for content-based video indexing and retrieval
    - Designed and implemented a web-platform for video navigation and content-based search. The platform relied on a modular architecture with workload distributed over multiple servers communicating via HTTP requests/responses. The interface exploited the HTML5 specifications and the MPEG-7 standard for the hierarchical navigation
    - Elaborated a novel search strategy for retrieving instances of the same object in videos starting from minimal object information given by the user via interactive selection
    - Designed a multi-modal query expansion technique for retrieving object instances in videos through textual queries launched on the web (e.g., Google Images)
    - Participated in international evaluation campaigns TRECVID - *Instance Search* (2011-2013) and MediaEval - *Diverse Social Images* (2013)
  - Teaching:
    - Delivered lectures on multimedia semantic indexing to BAC+5 students.
    - Supervised 2 bachelor thesis interns and coached several groups of 2-3 students
- 2009 **Bachelor thesis internship**, *Télécom SudParis*, ARTEMIS Team, Evry, France.
- Designed and developed a MPEG-7 compatible multimedia web-based search engine
- 2008 **Internship**, *Schlumberger*, Drilling and Measurements, Hassi Messaoud, Algeria.
- Analyzed and optimized the maintenance and repair chain in a rig workshop
- 2007 **Internship**, *Tenaris Silcotub*, Logistics Department, Zalau, Romania.
- Designed and developed a database for managing factory storehouse daily operations

## Various Activities

- 2017 Lecturer of *Deep Learning - Do It Yourself!* at ENS Paris along with Marc Lelarge and Florent Krzakala ( 80 participants)
- 2014 Co-organizer of the micro-Workshop on Computer Vision Rennes (90 participants)
- 2010 – 2013 Member of the Administrative Council of SEFI (European Society for Engineering Education); network of institutions in higher education from 47 countries
- 2009 – 2011 Student representative in the EUGENE (EUropean and Global Engineering Education) Academic Network); network of 78 European universities and companies
- 2005 – 2010 Volunteering activity at BEST (Board of European Students of Technology).
- 2007 – 2008 Vice-President for Corporate Relations of Local BEST Group Bucharest. Managed the fund raising strategy and activities of a team of 50 students
- 2006 – 2007 Coordinator of *JobShop*<sup>®</sup> Bucharest - jobfair gathering 103 companies and approx. 5.000 participants. Managed a team of 40-50 students

## Skills Overview

Programming *Experience* in Python, C, C++, Lua, Matlab, Javascript. *Familiar* with PHP, Java  
Libraries *Experience* in Torch, MatConvNet, OpenCV, Scikit-Learn, jQuery  
Teaching Qualification Maître de Conférences, Section 27 - Informatique (2015)  
Languages **English** - Fluent; **French** - Fluent; **Romanian** - Native; **Italian** - Basic

## Honors and Awards

2007 – 2008 Orange Education Program Scholarship  
2006 – 2008 Roberto Rocca Education Program Scholarship