

# Curriculum Vitae

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**Name** Barbara Zitová, doc., RNDr., PhD

**Affiliation** 1995 - now: Department of Image Processing,  
Institute of Information Theory and Automation,  
Academy of Sciences of the Czech Republic, Prague, Czech Republic

since 2008: head of the Department of image processing

## Education

The Mgr. degree in Computer Science from the Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic, 1995. Topic of the diploma thesis: "**Textures, the reaction diffusion generation**"

The RNDr. and Ph.D. degrees in Computer Science from the Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic, 2000. Topic of the Ph.D. thesis: "**Registration of Radiometrically Deformed Images by Invariant Descriptors**"

Doc. – Associate Professor in **Applied Mathematics**, 2018, Czech Technical University, Prague, Czech Republic

## Educational activities

- 2010 - now: undergraduate and graduate courses on Digital Image Processing and Pattern Recognition I (lecture and tutorials) at the Faculty of Nuclear Science and Physical Engineering, Czech Technical University, Prague

2002 - now: half of the course "Special Functions in Digital Image processing" at the Faculty of Mathematics and Physics, Charles University and Faculty of Nuclear Science and Physical Engineering, Czech Technical University, Prague

- 2013 - now: organizing regular tutorials „Image processing in practice“, at the Faculty of Mathematics and Physics, Charles University

## Thesis supervising

12 defended Master theses

2 PhD thesis defended, 1 PhD theses running

## Research interests

All aspects of digital image processing and pattern recognition; particularly image registration, object recognition by invariants, feature detection, theory of moments, wavelets, deep learning. Applications in medical imaging, computer vision, and art conservation.

## Projects

### Grant holder / main co-investigator:

- 2020 – 2021: grant TA FW01010343 Mobile diagnostic system to reduce consumption and rational use of antibiotics in the primary production of cow's milk, spoluřešitel
- 2019 – 2021: grant TA TH04010422 VKG 3.0
- 2019 – 2020 AV ČR bilaterální spolupráce Separating the invisible from the visible: mixture analysis of macroscopic elemental maps of valuable paintings
- 2019 - 2022: grant TA TN01000024: Národní centrum kompetence -Kybernetika a umělá inteligence, spoluřešitel
- 2017 – 2018: VH20172018014 - System for image based analysis for Police of Czech Republic
- 2014 – 2017: grant TA TA04011392 – Early ultrasound detection of breast cancer
- 2014 – 2017: *international* ARTEMIS; ALMARVI - Algorithms, Design Methods, and Many-Core Execution Platform for Low-Power Massive Data-Rate Video and Image Processing
- 2014 – 2017: grant TA TA04010877 – Automatic evaluation of videokymographic recordings for early diagnosis and prevention of vocal fold tumors
- 2009 – 2010: Internal promotion of international cooperation AVČR - AV ČR M100750901, Image analysis and automatic analysis of artwork material layers
- 2000 – 2002: Postdoctoral grant GA ČR No. 102/01/P065 – Geometric registration of degraded images

### Project manager:

2010 – 2013: Ministry of the Interior, VG20102013064 - PIZZARO - Tools for imaging device identification, authentication, and image reconstruction

### Tutorials and invited talks

Tutorial on IEEE ICIP 2005, Italy: Flusser J., Šroubek F., Zitová B., „Image registration: A survey and recent advances“.

Tutorial on EURASIP EUSIPCO 2007, Poznaň, Polsko: Flusser J., Šroubek F., Zitová B., „Image Fusion: Principles, Methods, and Applications“.

Tutorial on IEEE ICIP 2007, San Antonio, USA: Flusser Jan, Zitová Barbara, Suk Tomáš: „Image registration: Moments and moment invariants in image analysis“.

Tutorial on CVPR 2008, Anchorage, USA: Goshtasby A., Flusser J., Šroubek F., Zitová B., „Survey and Recent Advances in Image Registration and Fusion“.

Tutorial on IEEE ICIP 2009, Egypt: Flusser J., Šroubek F., Zitová B., „Image Fusion for Image and Video Quality Enhancement“.

2009: Flusser Jan, Zitová Barbara, Suk Tomáš : Moments and Moment Invariants in Pattern Recognition, 6th IASTED Conference on Signal Processing, Pattern Recognition and Applications SSPA'09, Innsbruck, AT, 16.02.2009-18.02.2009

2010: Flusser Jan, Šroubek Filip, Zitová Barbara : Image Fusion - principles, methods, and applications Innsbruck, AT, 18.02.2010

2016: Flusser Jan, Šroubek Filip, Zitová Barbara : Handling Blur, 23rd International Conference on Pattern Recognition in Cancun ICPR 2016, Mexico, December 2016

2019: Šroubek Filip, Flusser Jan, Zitová Barbara : Inverse problems in image restoration: from basic principles to current deep-learning trends (TUTORIAL) , International Conference on Acoustics, Speech, and Signal Processing ICASSP 2019

Talks and seminars at various institutes of The Czech Academy of Sciences, Czech universities

### Awards

- **2003:** Josef Hlavka award
- **2006:** Otto Wichterle premium award
- **2007:** The Award of the Chairman of the Czech Science Foundation (for the project No. GA CR 102/04/0155)
- **2007:** Price of the Academy of Sciences of the Czech Republic for the scientific achievement "Image recognition using fusion"
- **2010:** "SCOPUS 1000 Award" in recognition of more than 1000 SCOPUS citations of their paper "Image registration methods: A survey", Image and Vision Computing, vol.21, pp. 977-1000, 2003
- **2003, 2014, 2015, 2017:** award for The best publication 20014, Institute of Information Theory and Automation, Academy of Sciences, CR

### Publications

More than 80 papers in international journals and international conferences.

3 monography book (Wiley Publishing House), 3 book chapters

3 SW (IMARE - Image Registration Toolbox for MATLAB, Nephele, Pizzaro)

### Citations

WoS: 4200, h-index 9

Scopus: 6398, h-index 14

Scholar : 11235, h-index 19

### Other activities

- Associated editor for Pattern Recognition
- Reviewer for IEEE PAMI, IEEE TIP, PR, PRL
- Graduate courses for European Centre of Medical Informatics, Statistics and Epidemiology
- Coordinator of programme Hopes and Threats of Digital Era, (2015 – 2021), the research program is a part of the AV21 Strategy of the CAS
- Member of the Coordination Board of Doctoral study in biomedicine, UK
- Member of Subject Area Board Biomedical Informatics, UK