

# Filip Šroubek – Curriculum Vitae

## Education:

- B.S. (Computer Science) 1996, Czech Technical University, Dept. of Computer Science and Engineering, Prague, Czech Republic.
- M.S. (Computer Science) 1998, thesis: "Simulation and 3D Visualization of Atomic Collision Cascades", Czech Technical University, Dept. of Computer Science and Engineering, Prague, Czech Republic.
- Ph.D. 2003, thesis: "Image Fusion via Multichannel Blind Deconvolution", supervisor: Prof. Jan Flusser, Charles University, School of Computer Science, Prague, Czech Republic
- DSc. – Research Professor in Physico-Mathematical Sciences (Informatics and Cybernetics) 2014.

## Research Employment:

**Current:** Head of the Dept. of Image Processing, Institute of Information Theory and Automation, Academy of Sciences of the Czech Republic, Prague. Since 2006 research fellow and since 2008 vice-head of the department.

**till 2012** Research fellow in the Dept. of Characterization of Semiconductor Materials and Structures, Institute of Photonics and Electronics, Academy of Sciences of the Czech Republic, Prague; visualization of quantum dots.

**Jul 2010 – Apr 2011** Fulbright Visiting Scholar at the University of California, Santa Cruz, U.S.A.

**Sep 2004 – Feb 2006** Postdoc in the Imaging and Vision Dept., CSIC, Madrid, Spain (nominee of the Spanish States Secretary of Education and Universities fellowship, and of the NATO Science fellowship)

**Nov-Dec 2001** Dept. of Physics, University of Essen, Germany; computer simulation and visualization of atomic collision cascades in solids.

**Sep 2000** Participated in and completed the School on Mathematical Problems in Image Processing organized by the Abdus Salam International Center for Theoretical Physics, Trieste, Italy.

**Aug-Sep 1998** Joining a neural-net project conducted by the Department of Civil Engineering, Queen's University, Kingston, Canada.

**Sep 1997** Working on 3D visualization of atomic collision phenomena using SGI workstations and 3D shutter glasses at Dresden University, Germany.

## Teaching activities:

- Teaching at Charles University and the Czech Technical University: "Variational methods in Image processing"; since 2010.
- Teaching at the Czech Technical University, Faculty of Nuclear Sciences and Physical Engineering: "Statistical methods for classification and decision making"; since 2007.
- Teaching Assistant of the "Image Processing and Recognition" course at the Czech Technical University; years: 1999 - 2003.

## **Supervision of graduate students:**

- Supervising 2 Ph.D. students, Charles University
- Supervised 8 Master theses at Charles University and the Czech Technical University

## **Professional activities:**

- Editor of Digital Signal Processing journal, Elsevier since 2013.
- Member of the Doctoral Study Board at Charles University, Prague, Czech Republic since 2012 and of the Doctoral Study Board at the Czech Technical University, Prague, Czech Republic since 2013.
- Member of IEEE and Czech Association for Cybernetics since 2007.
- Member of the PhD defense board at the Universidad Politecnica, Madrid, Spain and at the Universidad de Castilla–La Mancha, Ciudad Real, Spain.
- Reviewer of several international journals (e.g. IEEE TIP, PAMI) and conferences (e.g. IEEE ICIP).

## **Other**

- Opponent of many BS., MS. and PhD. thesis at Charles University and the Czech Technical University.
- Organizer of the 5th International Workshop in Information Optics (WIO'06), Toledo, Spain, 2006.
- Results of my super-resolution research has been disseminated by leading Spanish newspapers (El Mundo, El Pais, etc.), by the Spanish state TV channel TVE2 and also by the Czech National TV (CT2)
- I perform video analyses for the Police of the Czech Republic and elaborate expert evidences in criminal proceedings.

## Funding ID

- Principal investigator of three national grants: Czech Grant Agency GACR 13-29225S “Image Blind Deconvolution in Demanding Conditions” 2013-2016; Czech Grant Agency GACR 202/05/0242 “Space resolved ballistic electron emission spectroscopy on individual InAs/GaAs dots embedded in AlGaAs barriers”, 2005–2007; Project of the Academy of Sciences “Mathematical methods for superresolution of digital images”, 2006–2007.
- Co-investigator of Technology Agency ČR grant TA04011392, “Early ultrasound detection of breast cancer”, 2014–2017; the grant of Ministry of the Interior of the Czech Republic VG20102013064 “Methods for identification of image recording devices, authentication, and image reconstruction” 2010–2013.
- Team member of EU Artemis grant 7H14004 “Almarvi”, and national grants: Czech Grant Agency 102/00/1711, 202/02/0098, 102/04/0155, 102/08/1593, 103/11/1552 and Center of Applied Research “DAR” (Ministry of Education 1M0572).
- Member and initiator of 3 international projects with Spain: bilateral project between the Czech Academy of Sciences and the Spanish C.S.I.C. 2002–2010, two Spanish national grants in the Instituto de Óptica (CSIC), 2005–2007 and 2007–2009.
- Travel grants/Fellowships: Travel grant of the Academy of Sciences, 2013-2015; Fulbright fellowship for scholars, 2010–2011; Fellowship granted by the National Program for the Mobility of Spanish and Foreign University Professors and Researches, 2004–2006; NATO Postdoctoral fellowship, 2004–2005.

# Achievements Track-Record

## Tutorials and Invited Presentations:

- J. Flusser, F. Šroubek, and B. Zitová. Handling blur (tutorial). In *Proceedings of the 23rd International Conference on Pattern Recognition*. IAPR, 2016
- P. Favaro, D. Wipf, F. Šroubek, and J. Wang. Removing camera blur: Tricks of the trade, insights and applications (tutorial). In *Proceedings of the 2015 IEEE International Conference on Computer Vision (ICCV 2015)*. IEEE, 2015
- F. Šroubek. Advances in image restoration: from theory to practice. In *Digital Photography XI*. SPIE-IS&T, 2015, Keynote Presentation
- F. Šroubek. Recent advances in image restoration. In *IEEE Second International Conference on Image Information Processing (ICIIP -2013)*. IEEE Press, 2013, Keynote Presentation
- F. Šroubek. Superresolution imaging - from equations to mobile applications. In *Neural Information Processing Systems Workshops Abstracts*, pages 1–1. NIPS Foundation, 2011
- F. Šroubek and J. Flusser. Superresolution and blind deconvolution of video. In *SIAM Conference on Imaging Science (Abstracts)*, pages 1–1. SIAM, 2010
- J. Flusser, F. Šroubek, and B. Zitová. Fusion in image processing (tutorial). In *Proc. 11th Int'l. Conf. on Information Fusion*, pages 1–4. IEEE, 2008
- A. Goshtasby, J. Flusser, F. Šroubek, and B. Zitová. Tutorial: Survey and recent advances in image registration and fusion. In *Abstracts Book of IEEE Computer Society Conference on Computer Vision and Pattern Recognition*, pages 27–27. IEEE, 2008
- J. Flusser, F. Šroubek, and B. Zitová. Tutorial: Image fusion - principles, methods, and applications. In *Proceedings of the 15th European Signal Processing Conference*, pages 1–2. EURASIP, 2007
- F. Šroubek, G. Cristóbal, and J. Flusser. Blind superresolution. In Cristóbal G., Javidi B., and Vallmitjana S., editors, *Proceedings of the 5th International Workshop on Information Optics*, pages 1–2. Springer, 2006
- B. Zitová, J. Flusser, and F. Šroubek. Image registration: A survey and recent advances. tutorial. In *Proceedings of the 12th IEEE International Conference on Image Processing. ICIP'05*, pages 1–2. IEEE, 2005

## Awards

- Outstanding Contribution Award at the 15th International Conference on Computer Analysis of Images and Patterns, York, UK, 2013.
- Prestigious award (Wichterle premium) of the Academy of Sciences of the Czech Republic, May 2008.
- Price of the Academy of Sciences of the Czech Republic for the scientific achievement “Image recognition using fusion”, 2007.
- The Award of the Chairman of the Czech Science Foundation (for the project No. GA CR 102/04/0155), 2007.
- National award (Hlávka prize) for young scientists, Nov 2006.

## Patents

- M. Stratmann, J.F. Evers-Senne, M. Schmieder, J. Flusser, and F. Sroubek. Method for preparing images in non-visible spectral ranges, and corresponding camera and measuring arrangement, December 5 2013. US Patent App. 13/991,235
- G.C. Perez and F. Sroubek. Blind deconvolution and super-resolution method for sequences and sets of images and applications thereof, October 22 2009. US Patent App. 12/090,192

## Software

- “MBD” – MATLAB toolbox for multichannel blind deconvolution and demosaicing (over 1000 registered users)
- “BSR” – MATLAB toolbox for blind superresolution (over 1000 registered users).

## Publications

See the full list of publications at <http://zoi.utia.cas.cz/node/6/%C5%A0roubek/Filip>