

Tomáš Suk – Curriculum Vitae

Born: April 30, 1964 in Praha, Czech Republic

Education

- The Ing. degree (corresponds to M.Sc.) in Electrical engineering from the Czech Technical University, Faculty of Electrical Engineering, Department of Cybernetics, Prague, 1987. Topic of the diploma thesis, Suk Tomáš: “Pseudoparallel Algorithms of Digital Snap Processing”, supervisor: Václav Hlaváč.
- The CSc. degree (corresponds to Ph.D.) in Computer science from the Czechoslovak Academy of Sciences, Prague, 1992. Topic of the Ph.D. thesis: “Digital Processing of Images from the Video Recorder”, supervisor: Stanislav Saic.
- The DSc. degree from the Czech Academy of Sciences, Prague, 2017. Topic of the DSc. thesis: “2D and 3D Image Analysis by Moments”.

Research Employment

- 1987-91: Ph.D. student with the Institute of Information Theory and Automation, Czechoslovak Academy of Sciences, Prague;
- 1991-now: Researcher with the same Institute, member of Department of Image Processing;
- 1993-1997: Researcher with the company SAEX², Prague;

Publications

Books

- Flusser Jan, Suk Tomáš, Zitová Barbara: 2D and 3D Image Analysis by Moments, Wiley & sons, 2016.
- Flusser Jan, Suk Tomáš, Zitová Barbara: 模式识别中时矩和矩不变量, Hefei, China: John Wiley and University of Science and Technology of China Press, 2014. Translation to Chinese.
- Yang Bo, Suk Tomáš, Dai Mo, Flusser Jan: 2D and 3D Image Analysis by Gaussian-Hermite Moments, chapter in: Moments and Moment Invariants: Theory and Applications, p. 143-173, Ed: Papakostas G. A., Science Gate Publishing, 2014.
- Flusser Jan, Suk Tomáš, Zitová Barbara: Moments and Moment Invariants in Pattern Recognition, Wiley & sons, 2009.

Journal articles

- Yang Bo, Kostková Jitka, Flusser Jan, Suk Tomáš: Scale invariants from Gaussian-Hermite moments, *Signal Processing* vol.132, 1 (2017), p. 77-84
- Šimberová Stanislava, Suk Tomáš: Dynamic process analysis by moments of extreme orders, *Astronomy and Computing* vol.14, (2016), p. 43-51
- Flusser Jan, Farokhi Sajad, Höschl Cyril IV, Suk Tomáš, Zitová Barbara, Pedone Matteo: Recognition of Images Degraded by Gaussian Blur, *IEEE Transactions on Image Processing* vol.25, 2 (2016), p. 790-806
- Suk Tomáš, Flusser Jan, Boldyš Jiří: 3D rotation invariants by complex moments, *Pattern Recognition* vol.48, 11 (2015), p. 3516-3526
- Yang Bo, Flusser Jan, Suk Tomáš: Design of high-order rotation invariants from Gaussian-Hermite moments , *Signal Processing* vol.113, 1 (2015), p. 61-67
- Yang Bo, Flusser Jan, Suk Tomáš: 3D rotation invariants of Gaussian-Hermite moments , *Pattern Recognition Letters* vol.54, 1 (2015), p. 18-26
- Flusser Jan, Suk Tomáš, Boldyš Jiří, Zitová Barbara : Projection Operators and Moment Invariants to Image Blurring , *IEEE Transactions on Pattern Analysis and Machine Intelligence* vol.37, 4 (2015), p. 786-802
- Suk Tomáš, Flusser Jan: Recognition of Symmetric 3D Bodies , *Symmetry-Basel* vol.6, 3 (2014), p. 722-757
- Flusser Jan, Suk Tomáš, Zitová Barbara: Comments on “Weed Recognition using Image Blur Information” by Peng, Z. & Jun, C., *Biosystems Engineering* 110 (2), p. 198-205, *Biosystems Engineering* vol.2014, 126 (2014), p. 104-108
- Šimberová Stanislava, Karlický Marian, Suk Tomáš: Statistical Moments of Active-Region Images During Solar Flares, *Solar Physics* vol.289, 1 (2014), p. 193-209
- Novotný Petr, Suk Tomáš: Leaf Recognition of Woody Species in Central Europe, *Biosystems Engineering* vol.115, 4 (2013), p. 444-452
- Yang Bo, Flusser Jan, Suk Tomáš: Steerability of Hermite Kernel, *International Journal of Pattern Recognition and Artificial Intelligence* vol.27, 4 (2013), p. 1354006-1 – 1354006-25
- Suk Tomáš, Novotný Petr, Flusser Jan: Computer-Aided Leaf Recognition Visual System, *ERCIM News* vol.2013, 95 (2013), p. 15-16
- Suk Tomáš, Höschl Cyril IV, Flusser Jan: Decomposition of Binary images - A Survey and Comparison, *Pattern Recognition* vol.45, 12 (2012), p. 4279-4291
- Suk Tomáš, Flusser Jan: Affine Moment Invariants Generated by Graph Method, *Pattern Recognition* vol.44, 9 (2011)
- Vácha Pavel, Haindl Michal, Suk Tomáš: Colour and rotation invariant textural features based on Markov random fields, *Pattern Recognition Letters* vol.32, 6 (2011), p. 771-779

- Flusser Jan, Suk Tomáš: Rotation Moment Invariants for Recognition of Symmetric Objects, IEEE Transactions on Image Processing vol.15, 12 (2006), p. 3784-3790
- Suk Tomáš, Flusser Jan: Projective moment invariants, IEEE Transactions on Pattern Analysis and Machine Intelligence vol.26, 10 (2004), p. 1364-1367
- Suk Tomáš, Flusser Jan: Combined blur and affine moment invariants and their use in pattern recognition, Pattern Recognition vol.36, 12 (2003), p. 2895-2907
- Suk Tomáš, Flusser Jan: Point-based projective invariants, Pattern Recognition vol.33, 2 (2000), p. 251-261
- Flusser Jan, Suk Tomáš: Degraded image analysis: An invariant approach, IEEE Transactions on Pattern Analysis and Machine Intelligence vol.20, 6 (1998), p. 590-603
- Flusser Jan, Suk Tomáš: On selecting the best features in a noisy environment, Kybernetika vol.34, 4 (1998), p. 411-416
- Flusser Jan, Suk Tomáš: Classification of degraded signals by the method of invariants, Signal Processing vol.60, 2 (1997), p. 243-249
- Flusser Jan, Suk Tomáš, Saic Stanislav: Recognition of blurred images by the method of moments, IEEE Transactions on Image Processing vol.5, 3 (1996), p. 533-538
- Flusser Jan, Suk Tomáš, Saic Stanislav: Recognition of images degraded by linear motion blur without restoration, Computing. Supplement vol.11, p. 37-51
- Suk Tomáš, Flusser Jan: Vertex-based features for recognition of projectively deformed polygons, Pattern Recognition vol.29, 3 (1996), p. 361-367
- Flusser Jan, Suk Tomáš, Saic Stanislav: Image features invariant with respect to blur, Pattern Recognition vol.28, 11 (1995), p. 1723-1732
- Flusser Jan, Suk Tomáš: A moment-based approach to registration of images with affine geometric distortion, IEEE Transactions on Geoscience and Remote Sensing and IEEE Transactions on Geoscience Electronics vol.32, 2 (1994), p. 382-387
- Flusser Jan, Suk Tomáš: Affine moment invariants: a new tool for character recognition, Pattern Recognition Letters vol.15, p. 433-436
- Flusser Jan, Suk Tomáš: Pattern Recognition by Affine Moment Invariants, Pattern Recognition vol.26, 1 (1993), p. 167-174

Another 50 conference papers, mostly from international conferences and 18 additional publications. They can be found on <http://www.utia.cas.cz/node/467/Suk/Tomáš>

Professional activities

- Member of IAPR and Czech Association for Cybernetics and Informatics.

- Reviewer of several international journals (e.g. IEEE Trans. Image Processing) and conferences (e.g. IEEE ICPR).

Other

- Supervising 4 Master theses – they have been successfully defended
- Opponent of many BS., MS. and PhD. thesis at Charles University, Czech Technical University, University of Life Sciences and Brno University of Technology

Grants and projects

Principal investigator of basic research projects supported by the Czech Science Foundation (GAČR):

- 102/95/1378: 3D Shape Reconstruction from Intensity Images (1995-1997),
- 102/98/P069: Combined invariants and their using for recognition of 2-D objects (1998-2000),
- 201/03/0675: Affine moment invariants of higher orders (2003-2005),
- 102/04/0155: Digital image fusion in case of nonlinear imaging models (2004-2006),
- 102/08/1593: Mathematical methods for resolution enhancement of digital images and their applications in astronomy (2008-2010),
- P103/11/1552: Moments and Moment Invariants in Image Analysis (2011 - 2013).

Participation in research projects supported by the Grant Agency of Charles University

- 524512/2012 Digital recognition of woody species according to their leaves (2012).

Awards

- 2002: The Otto Wichterle's premium of the Academy of Sciences of the Czech Republic for young scientists.
- 2007: A member of the winner team of the Academy of Sciences' prize for "Object recognition by fusion of images from different sources".

Software

- "ZODOP" - image processing program in C++.
- "Recognition of woods by shape of the leaf" - web page:

<http://leaves.utia.cas.cz/?lang=en>

Research interests

digital image processing, pattern recognition, image filtering, invariant features, moment and point invariants, geometric transformations of images. Applications in remote sensing, astronomy, medicine, biology and computer vision.