

Personal data

First name: Vojtěch
Family name: Franc
Nationality: Czech
Marital status: Married, two children (Tomas, Tereza)
Contact address: Center for Machine Perception
Czech Technical University,
Faculty of Electrical Engineering
Department of Cybernetics
Technicka 2, 166 27 Praha 6,
Czech Republic
WWW: <http://cmp.felk.cvut.cz/~xfrancv>
Email: xfrancv@cmp.felk.cvut.cz

Education

2000–2005 **Ph.D.**, CMP FEE CTU Prague.
Thesis: **Optimization Algorithms for Kernel Methods**.
Supervised by Prof. Vaclav Hlavac.
1994–2000 **MSc.**, CMP FEE CTU
Thesis: **Pattern Recognition Toolbox for Matlab**.
Supervised by Prof. Vaclav Hlavac.

Employment

2008–present **Research fellow** at CMP FEE CTU
2006–2008 **Research fellow** at Fraunhofer Institute FIRST.IDA in Berlin.
2004–2006 **Research fellow** at CMP FEE CTU
1994–2000 **Student Assistant, Academy of Sciences of the Czech Republic**.
Institute of Rock Structure and Mechanics.
Designed and implemented: **Seismic Monitoring System for PC, Systems for data acquisition and processing**.

Research fellowships

2006–2008 **Marie Curie PostDoc fellow** at IDA.FIRST of Fraunhofer Institute in Berlin.
March - June, 2001 Vienna University of Technology, Computer Science Department
Pattern Recognition and Image Processing Group
Erasmus Student Exchange Program
May, 2001 Erasmus Intensive Program 2001 on Computer Vision in Pavia, Italy.
August, 1997 Delft University of Technology, The Netherlands
Faculty of Information Technology and Systems.
Project: **Profile Face Analysis Based on Edge Detection** .

Teaching experience

2008–present Lecturing labs of the **Optimization** course at FEE CTU
2004–2006 Lecturing the **Pattern Recognition** courses at FEE CTU
2000–2006 Lecturing labs of the **Pattern Recognition** course at FEE CTU

Researcher on projects

- 2013 – present **LaSCaR**. Large Scale Category Retrieval.
ERC CZ - Ministry of Education, Youth and Sports, LL1303.
- 2012 – present **Strom**. Structured Statistical Models for Image Understanding.
Grant Agency of the Czech Republic under Project P202/12/2071.
- 2010 – 2013 **Humanoids with auditory and visual abilities in populated spaces**.
FP7 EU under Project HUMAVIPS FP7-ICT-247525.
- 2009–2013 **Semi-Supervised Structred Output Learning**.
EU FP7 Marie Curie grant PERG04-GA-2008-239455.
- 2005 – 2006 **Principles of Dissimilarity-Based Pattern Recognition in Signals, Symbolic Sequences and Images**.
EU INTAS project PRINCESS 04-77-7347.
- 2006–2008 **Scalable Online Learning Systems**.
EU FP6 Marie Curie grant MEIF-CT-2006-042107.
- 2004 – 2006 **Cognitive Systems using Perception-Action Learning**.
FP6 EU under Project 004176 COSPAL.
- 2003 – 2005 **Robust and adaptive approaches to scene and object recognition**.
Funded by the Austrian Ministry of Education under Project CONEX GZ 45.535.
- 2004 **European Research Network for Cognitive AI-enabled Computer Vision Systems**. EU FP5 under Project IST-2001-35454.
- 2001, 2003–2004 **Face recognition and detection system**.
Commercial project for Samsung Advanced Institute of Technology.
- 2000 **Proof of convergence of the EM algorithm for conditionally independent model to the global maximum**.
Grant Agency of CTU under Project CTU 0208313.

Awards

- 2012 **Best student paper award** for the paper M.Uricar, V. Franc and V. Hlavac: Detector of Facial Landmarks Learned by the Structured Output SVM. The International Conference on Computer Vision Theory and Applications, 2012, Portugal.
- 2001 **Young Scientist Award** for the paper V.Franc, V. Hlavac: A Contribution to the Schlesinger's Algorithm Separating Mixtures of Gaussian presented at 9th International Conference on Computer Analysis of Images and Patterns, 2001, Warsaw, Poland.

Workshop co-organization

- Feb. 3–5, 2010 **Computer Vision Winter Workshop**.
Organizers: V. Franc and L.Špaček.
Funded by the Czech Society for Cybernetics and Informatics
Nove Hrad, Czech Republic
- July 9, 2008 **PASCAL Large-Scale Learning Challenge**.
Organizers: S. Sonnenburg, V. Franc, E. Yom-Tov and M. Sebag.
Adjoint to the International Conference on Machine Learning (ICML'08)
Helsinki, Finland
- Feb. 6–8, 2006 **Computer Vision Winter Workshop**.
Organizers: O. Chum and V. Franc.
Funded by the Czech Society for Cybernetics and Informatics
Telč, Czech Republic

Reviewing

Journals IEEE PAMI, IEEE TNN, IEEE TMI, JMLR, Neurocomputing, Pattern Recognition
Conferences ICML, NIPS, CVPR, ICCV, ICPR.

Language skills

Czech: mother tongue
English: fluent

Publications

Book chapters:

[Franc12a] V Franc, S Sonnenburg, T Werner. Cutting Plane Methods in Machine Learning. In Optimization for Machine Learning, MIT Press, 2012.

Journal Papers:

[Pineda13] X. Alameda-Pineda, J. Sanchez-Riera, J. Wienke, V. Franc, J. Cech, K. Kulkarni, A. Delaforge, R. Horaud. RAVEL: an annotated corpus for training robots with audiovisual abilities. Journal on Multimodal User Interface. 2013.

[Franc11a] V. Franc, P. Laskov. Learning Maximal Margin Markov Networks via Tractable Convex Optimization. Control Systems and Computers, no 2., pp 25–34, 2011

[Sonnenburg10a] S. Sonnenburg, G. Ratsch, S. Henschel, C. Widmer, J. Behr, J. A. Zien, F. de Bona, A. Binder, C. Gehl, V. Franc. The SHOGUN Machine Learning Toolbox. Journal of Machine Learning Research, 11:1532-4435, June 2010.

[Franc09a] V. Franc and S. Sonnenburg. Optimized Cutting Plane Algorithm for Large-Scale Risk Minimization. *Journal of Machine Learning Research*, 10:2157–2192, October 2009.

[Franc08a] V. Franc and B. Savchynskyy. Discriminative Learning of Max-Sum Classifiers. *Journal of Machine Learning Research*, 9:67–104, January 2008.

[Franc03a] V. Franc and V. Hlaváč. An iterative algorithm learning the maximal margin classifier. *Pattern recognition*, 36(9):1985–1996, September 2003.

[Franc02a] V. Franc and V. Hlaváč. A new feature of the statistical pattern recognition toolbox. *Telematik*, 7(3):22–25, September 2001.

Reviewed Conference Papers:

[Cech14a] J. Cech, V. Franc, J. Matas. A 3D Approach to Facial Landmarks: Detection, Refinement, and Tracking. In *Proc of. International Conference on Pattern Recognition*. 2014.

[Franc14a] V. Franc. FASOLE. Fast Algorithm for Structured Output Learning. In *Proc of. European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases*. 2014.

- [Antoniuk14a] A. Antoniuk, V. Franc, V. Hlavac. Interval Insensitive Loss for Ordinal Classification. In *Proc of. Asian Conference on Machine Learning*. 2013.
- [Cevikalp13a] H. Cevikalp, B. Triggs, V. Franc. Face and Landmark Detection by Using Cascade of Classifiers. In *Proc of. Automatic Face and Gesture Recognition*. 2013.
- [Antoniuk13a] A. Antoniuk, V. Franc, V. Hlavac. MORD: Multi-class Classifier for Ordinal Regression. In *Proc of. Machine Learning and Knowledge Discovery in Databases*. 2013.
- [Uricar13a] M. Uricar, V. Franc, V. Hlavac. Bundle Methods for Structured Output Learning — Back to the Roots. In *Proc. of the 18th Scandinavian Conference on Image Analysis*. 2013.
- [Sara13a] R. Sara, M. Matousek, V. Franc. RANSACing Optical Image Sequences for GEO and near-GEO Objects. In *Proc. of Advanced Maui Optical and Space Surveillance Technologies Conference*. 2013.
- [Franc12b] M. Uricar, V. Franc and V. Hlavac. Detector of Facial Landmarks Learned by the Structured Output SVM. In *Proc. of VISAPP*. 2012.
- [Franc12a] K. Antoniuk, V. Franc, V. Hlavac. Learning Markov Networks by Analytic Center Cutting Plane Method. In *Proc. of ICPR*. 2012.
- [Franc11b] V. Franc, A. Zien, B. Schoelkopf. Support Vector Machines as Probabilistic Models. In *Proc. of ICML*. 2011.
- [Sonnenburg10a] S. Sonnenburg, V. Franc. COFFIN: A Computational Framework for Linear SVMs. In *Proc. of ICML*. 2010.
- [Franc08b] V. Franc, P. Laskov and K.-R. Müller. Stopping conditions for exact computation of leave-one-out error in support vector machines. In *Proc. of ICML*. 2008.
- [Franc08c] V. Franc and S. Sonnenburg. Optimized cutting plane algorithm for support vector machines In *Proc. of ICML*. 2008.
- [Rathousky08a] J. Rathousky, M. Urban and V. Franc. Recognition of Text with Known Geometric and Grammatical Structure In *Proc. of VISAPP*. 2008.
- [Posik07a] P. Pošík and V. Franc. Estimation of fitness landscape contours in EAs. In *Proc. of GECCO*. ACM, 2007.
- [Franc07b] V. Franc and S. Sonnenburg. SVM OCAS - Optimized cutting plane algorithm for Support Vector Machines. *NIPS workshop on Efficient Machine Learning*. 2007.
- [Franc05a] V. Franc, V. Hlaváč. Sequential coordinate-wise algorithm for the non-negative least squares problem. In *Proc. of CAIP*. Springer Verlag, 2005.
- [Franc05b] V. Franc and V. Hlaváč. License plate character segmentation using hidden Markov chains. In *Proc. of DAGM*. Springer Verlag, 2005.
- [Franc05c] V. Franc and V. Hlaváč. Simple solvers for large quadratic programming tasks. In *Proc. of DAGM*. Springer Verlag, 2005.
- [Ridder03a] D. De Ridder and V. Franc. Robust subspace mixture models using t -distributions. In *Proc. of BMVC*. BMVA, London, 2003.

- [Hanton03a] K. Hanton, V. Smutný, V. Franc, and V. Hlaváč. Alignment of sewerage inspection videos for their easier indexing. In *Proc. of ICVS*. Springer Verlag, 2003.
- [Franc03b] V. Franc and V. Hlaváč. Greedy algorithm for a training set reduction in the kernel methods. In *Proc. of ICVS*. Springer Verlag, 2003.
- [Franc03c] V. Franc and V. Hlaváč. Training set approximation for kernel methods. In *Proc. of CVWW'03*. Czech Pattern Recognition Society, 2003.
- [Franc03d] V. Franc, V. Hlaváč, and M. Navara. Convergence of the expectation maximization algorithm for the conditionally independent model to the global maximum. In *Proc. CTU Workshop*. CTU Publishing House. 2003.
- [Franc02b] V. Franc and V. Hlaváč. Multi-class Support Vector Machine. In *Proc. of ICPR*. IEEE Computer Society. 2002.
- [Franc02c] V. Franc and V. Hlaváč. Kernel representation of the Kesler construction for multi-class SVM classification. In *Proc. of CVWW'02*. Vienna University of Technology. 2002.
- [Franc01a] V. Franc and V. Hlaváč. A new feature of the statistical pattern recognition toolbox. In *DAGM*. Springer Verlag. 2001.
- [Franc01b] V. Franc and V. Hlaváč. A contribution to the Schlesinger's algorithm separating mixtures of Gaussians. In *Proc. of CAIP*. Springer Verlag. 2001.
- [Franc01c] V. Franc and V. Hlaváč. A simple learning algorithm for maximal margin classifier. In *Proc. of Kernel and Subspace Methods for Computer Vision, ICANN*, Austria, 2001.
- [Franc00a] V. Franc, V. Hlaváč, and M.I. Schlesinger. Linear and quadratic classification toolbox for Matlab. In *Proc. of CVWW*. Czech Pattern Recognition Society. 2000.

Selected Technical Reports:

- [Franc07a] V. Franc and S. Sonnenburg. *Optimized cutting plane algorithm for SVMs*. FIRST Reports 1/2007; Fraunhofer FIRST, Berlin, December 2007.
- [Franc05d] V. Franc. *Optimization Algorithms for Kernel Methods*. PhD thesis, Czech Technical University in Prague, 2005.
- [Franc04a] V. Franc and V. Hlaváč. Statistical pattern recognition toolbox for Matlab. Research Report CTU–CMP–2004–08, FEE CTU, Prague, 2004.
- [Franc02e] V. Franc and J. Matas. An extension of the component-based LDA descriptor by the generalized discriminant analysis. Research Report ISO-IEC-JTC1-SC29WG11-MPEG-8727, ISO/IEC JTC 1/SC 29/WG 11 Moving Picture Experts Group, Washington, USA, 2002.