Milan Šulc

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Deptartment of Cybernetics
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Education

Ph.D. in Artificial Intelligence and Biocybernetics (2014-2021)
Czech Technical University in Prague, FEE, CMP, Visual Recognition Group.
Thesis: Fine-grained Recognition of Plants and Fungi from Images
Thesis defended in January 2021. Advisor: prof. Jiří Matas.

MSc. in Computer Vision and Image Processing (2012-2014)
Czech Technical University in Prague, FEE.
Thesis: Tree Identification from Images
Graduated Summa Cum Laude. Minor: Artificial Intelligence.

Engineering Exchange student (Spring semester 2014)
University of Wisconsin–Madison. GPA: 4.0

MSc. in Entrepreneurship and Management in Industry. (2012-2015)
Czech Technical University in Prague, MIAS.

BSc. in Cybernetics and Robotics (2009-2012)
Czech Technical University in Prague, FEE.
Thesis: Image-based Recognition of Plants

Professional Experience

Toyota/TRACE and **Czech Technical University in Prague** (2019-present)
Classifier calibration and adaptation to prior shift.
3D object detection from monocular camera(s) and dense object detection.

Electrolux and **Czech Technical University in Prague** (2015-2020)
Computer vision R&D projects of Electrolux and FEE CTU in Prague.

Google, **Mobile Vision team** (2017)
Internship, applications of Generative Adversarial Networks to fine-grained domains.

Xerox Research Centre Europe, Now NAVER Labs Europe (2014)
A computer vision R&D internship, US Patent no. 9443164.

University of Oxford, **Visual Geometry Group** (2013)
Machine learning internship, contributing to the open-source VLFeat library.

Czech Technical University in Prague (2011-2014)
Computer vision R&D at the Center for Machine Perception.

Publications

The Hitchhiker's Guide to Prior-Shift Adaptation,
Šipka T., Šulc M., Matas J. arXiv preprint arXiv:2106.11695, 2021.

Danish Fungi 2020 – Not Just Another Image Recognition Dataset,
Picek L., Šulc M., Matas J., Heilmann-Clausen J., Jeppesen T. S., Læssøe T., Frøslev T. arXiv preprint arXiv:2103.10107, 2021.

Fungi Recognition: A Practical Use Case,
Šulc M., Picek L., Matas J., Jeppesen T., Heilmann-Clausen J. WACV 2020.

Improving CNN classifiers by estimating test-time priors,
Šulc M., Matas J. ICCV Workshops, 2019.

Recognition of the Amazonian flora by inception networks with test-time class prior estimation,
Picek L., Šulc M., Matas J. LifeCLEF 2019, in Working Notes of CLEF 2019.

Plant Recognition by Inception Networks with Test-time Class Prior Estimation,
Šulc M., Picek L., Matas J. ExpertLifeCLEF 2018, in Working Notes of CLEF 2018.

Plant Identification: Experts vs. Machines in the Era of Deep Learning (Book Chapter), Bonnet P., Goeau H., Hang S.T., Lasseck M., Šulc M., Malecot V., Jauzein P., Melet J-C., You Ch., Joly A. In A. Joly, S. Vrochidis, K. Karatzas, A. Karppinen, P. Bonney (Ed.) Multimedia Tools and Applications for Environmental & Biodiversity Informatics. 2018. ISBN: 978-3-319-76445-0.

Fine-grained Recognition of Plants from Images,
Šulc M., Matas J. Plants in Computer Vision [Special Issue], Plant Methods. 2017. ISSN: 1746-4811. Impact Factor 3.51

Learning with Noisy and Trusted Labels for Fine-Grained Plant Recognition,
Šulc M., Matas J. LifeCLEF 2017, in Working Notes of CLEF 2017.

Very Deep Residual Networks with Maxout for Plant Identification in the Wild,
Šulc M., Mishkin D., Matas J. LifeCLEF 2016, in Working Notes of CLEF 2016.

Significance of Colors in Texture Datasets,
Šulc M., Matas J. 21st Computer Vision Winter Workshop, 2016.

Fast Features Invariant to Rotation and Scale of Texture,
Šulc M., Matas J. ECCV Workshops, Springer LNCS, 2014.

Texture-Based Leaf Identification,
Šulc M., Matas J. ECCV Workshops, Springer LNCS, 2014.

Kernel-mapped histograms of multi-scale LBPs for tree bark recognition,
Šulc M., Matas J. Image and Vision Computing New Zealand 2013.

Patents

System and Method for Product Identification,
Šulc M., Gordo A., Larlus D., and Peronnin F. US Patent no. 9443164. Owner: Xerox Corp.

Attended Conferences, Workshops, etc.

CVWW 2020, **ICCV 2019**, CLEF 2019, CVWW 2019, CLEF 2018, **CVPR 2018**, **ICCV 2017**, CLEF 2017, Google PIRC 2017, 1st Winter School in CSE on Computer Vision in Jerusalem 2017, BMVA tech. meeting on Plants in Computer Vision 2016, Google Computer Vision PhD Summit 2016, **CVPR 2016**, CVWW 2016, VS3 2015, **ECCV 2014**, ERC ALLEGRO workshop 2014, IVCNZ 2013.

Other Activities

Labs teacher at FEE CTU in Prague: Computer Vision Methods for MSc students (2015-2017); Problem Solving and Games for BSc students (2016-2018), Pattern Recognition and Machine Learning for BSc students (2018-2020). Master thesis advisor (2018).

Member of the **Disciplinary commission of FEE CTU**. (2016-2018)

International Student Club, CTU in Prague: Language Teacher (2013), Visa Coordinator (2015).

Prizes

1st place in the FGVCx Fungi and FGVCx Flowers fine-grained recognition challenges organized with the FGVC5 workshop at CVPR 2018.

1st place in the ExpertLifeCLEF 2018 Plant Identification Task.

Prize of Josef Hlávka for the best students and graduates, 2014, The Foundation of Josef, Marie and Zdeňka Hlávka.

Best internship project presentation, 2014, Xerox Research Centre Europe.

Dean's prize for outstanding Master thesis, 2014, CTU in Prague, FEE.

Prize of the Masaryk Institute director for an original and precise thesis, 2015, CTU in Prague, MIAS.