

## Curriculum Vitae



### Personal Information

Name Roman Peter Pflugfelder  
Date of birth 18 July 1974  
Citizenship Austria  
Marital status Married, one child

### Highlights

- 20 year's experience in computer vision and machine learning including motion analysis and tracking, multi-view geometry and recognition
- Outstanding initiator and bridge builder between science and economy
- Throughout knowledge of technology and innovation processes
- Led six person team that studied object tracking and camera calibration with non-overlapping camera views; applied results with companies to video surveillance, indoor navigation and robotics
- Inventor of patented rotating event camera and patented calibration of non-overlapping cameras based on structure-from-motion
- Initiated 2012 the Visual Object Tracking Challenge and Workshop (VOT)

### Education

30/05/2008 Doctorate studies in Technical Sciences with distinction  
Technical University Graz, Austria  
  
Society for Information and Communication Technologies of the Austrian Electrotechnical Association (OVE-GIT) award 2009 for the thesis "Self-calibrating Cameras in Video Surveillance", advisor Prof. Horst Bischof, referee Prof. James Ferryman (University of Reading, UK)  
  
Attended International Computer Vision Summer School 2008, Sicily

11/03/2002 Diploma studies in Informatics with distinction (GPA 3.74/4)  
Technical University Vienna, Austria (THE'19 Rank 76 for computer science)  
  
Institute's award PRIP 2001 (Prof. Walter Kropatsch) for the best thesis "Visual Traffic Surveillance Using Real-time Tracking"; first scientific work in Austria that applied computer vision to traffic monitoring  
  
Self-composed elective subject "Soft Computing" including Neural Networks, Evolutionary Computation and Fuzzy Logic  
  
Abroad studies:

- 10/2000 - 04/2001: won competitive Kurt Gödel Scholarship, University of Queensland, Brisbane, Australia, Prof. Brian Lovell, Prof. Kurt Kubik
- 05/2000: invited for EU Erasmus Intensive Program Scholarship, INSA, Lyon, France, Prof. Jean-Michel Jolion

1993 – 1994 Military Service Starhemberg Casern, Clerk (Battalion), rank: Private

1988 – 1993

High school diploma in Business Informatics with distinction (GPA 3.81/4)  
Technical Secondary School HTL Donaustadt, Vienna, Austria

Obtained trade authorisation; completed REFA Part A; training firm was part of the curriculum

1984 – 1988

Gymnasium BRG 4 Waltergasse, Vienna

## **Professional Experience**

04/2007 – present

AIT Austrian Institute of Technology  
Center for Digital Safety and Security  
Scientist and Project Manager

Work currently on visual learning for object tracking, detection, recognition particular in surveillance/security/safety applications

- Co-acquired Research Promotion Agency (FFG) project “Migration Trend Analysis”, 259.165 Euro (2019 – 2020); work package leader of topic satellite image analysis
- Co-acquired FFG project “Aerial Search & Rescue Support and Supervision of inaccessible Terrains”, 305.000 Euro (2018 – 2020)
- Co-acquired EU Foldout project “Through-foliage detection, including in the outermost regions of the EU”, 1,8 Mio. Euro (2018 – 2022), 19 partners; task leader of multispectral image analysis
- Co-acquired EU Artemis project “EMC2 Embedded Multi-Core Cloud”, 230.671 Euro (2013 – 2017); 101 commercial and academic partners; initiated research with TTTech’s Time Triggered Architecture (TTA) for deterministic networks of cameras in cyberphysical systems
- Coordinated AIT programme “Mobile Vision” with TU Graz, Uni Klagenfurt, 2.1 Mio. Euro (2012 – 2016); set up and managed strategic programme to work with Austrian universities and to strengthen Austrian computer vision research; developed selection process of foundation professorship
- Acquired and coordinated FFG project “Passenger Flow Monitoring for Enhancing Airport Safety and Efficiency Using a Large Network of Surveillance Cameras”, 528.100 Euro (2012 – 2015); wrote proposal and managed the project; studied with Munich airport, SLR Engineering GmbH and AIT Mobility the use of existing security cameras for passenger flow monitoring; developed and successfully field-tested a calibration method for distant security cameras allowing oblique camera views; patented the method in EU
- Led task in EU FET PROACTIVE project “Engineering Proprioception in Computing Systems” (2010 – 2014); studied with Georg Nebehay parts-based and long-term tracking; CMT was awarded best paper; our TLD implementation has 1.100+ forks on Github and is part of ROS; NASA, FESTO AG and Neurala Inc. used the results in their projects
- Acquired and coordinated Vienna Science and Technology Fund (WWTF) Career Grant “Simultaneous Calibration and Tracking: A joint optimisation approach for arbitrarily placed cameras”, 492.000 Euro (2009 – 2012); wrote proposal and received as principal investigator prestigious career grant (top 15%); studied camera calibration and object tracking jointly;

formulated polynomial eigenvalue problem and developed (Matlab) several approaches based on SOCP, branch-and-bound; published at major conferences (CVPR, ICCV, DAGM) and in a Springer book; technique got awareness by Frost & Sullivan in their TI newsletter

10/2003 – 03/2007 Technical University Graz  
Institute of Computer Graphics and Vision  
Research Assistant

- Acquired and coordinated of FFG Young Experts Ph.D. Grant “Plug & Detect: Self-calibrating and self-configuring video surveillance”, 108.900 Euro (2003 - 2007); wrote proposal and managed the project; developed (Matlab, C) calibration method for single cameras based online segment; published work in Ph.D. thesis, TPAMI; patented the method in Austria
- Co-acquired and led task in Ministry for Transport, Innovation and Technology I2 project “Video based Image analysis for Tunnel Safety”, 262.680 Euro (2004); initiated the project; planned experimental methodology; led tunnel experiments with Asfinag and TU Graz

04/2002 – 09/2003 Technical University Vienna  
Institute of Computer-aided Automation  
Research Assistant

- Established licensing agreement with FLIR Traficon, 578.000 Euro; developed contact to Traficon and initiated contract research
- Acquired EU FP6 project “Aircraft surroundings, categorised Vehicles and Individuals Tracking for apron’s Activity model interpretation and Check” 152.022 Euro (2004 - 2006); established contact to project coordinator
- Worked on automated traffic monitoring; developed (Matlab, C) methods based on keypoint trackers (KLT) and based on robust competitive unsupervised learning (neural gas, k-means, MDL) for anomaly detection

**Professional Training**

2019 Strategic Selling for Scientists, Andrew Gallacher

2018 Moderationstraining, Knotek Training, Christine Knotek

2017 Feedback Skills, BrainGrow, Dagmar Hinner-Hofstätter

2017 IPMA Level D, zJPM certified

2016 Projectmanagement, Primas Consulting, Andreas Goldschmid

2014 Mentaltraining für Führungskräfte (management training), Prof. Karl Stifter

2012 Strategic Selling and Analysis, Bernhard Knapp Organisationsberatung

2011 Projektentwicklung und Antragstellung im 7. EU-Rahmenprogramm (research projects in EU FP7), FFG

2010 WWTF-Patentworkshop

2009 How to write a competitive proposal for EU FP7, Hyperion, Sean McCarthy

1991 Strategisches Management in der Praxis, Austrian Industries, Georg Turnheim

**Languages**

German Native

English	C2 - Proficient user
French	A1 - Basic user
<b>Technical Skills</b>	
Excellent	Matlab (15+ years), C/C++ (25+ years), Latex (15+ years)
Good	MS Office, Mac OS, Linux, Windows, Python, pyTorch, Julia, Flux
Basic	SLURM, Docker, HTML/PHP, WordPress
<b>Teaching Experience</b>	
2019	Austrian Electrotechnical Association (OVE) Trainer  Give professional course on deep learning for engineers
1998 – present	Technical University Vienna Student Tutor and Lecturer <ul style="list-style-type: none"> <li>▪ Hold lecture “Machine Learning for Visual Computing”, 3.0h (4.5EC)</li> <li>▪ Tutored Einführung in das Programmieren für Anwender, Einführung in das Programmieren (intro. to programming)</li> <li>▪ Tutored Neuronale Netze (neural networks)</li> <li>▪ Tutored Anwendungen der Bildverarbeitung (app. of image proc.)</li> <li>▪ Tutored Einführung in die Mustererkennung (intro. to pattern rec.)</li> <li>▪ Tutored Bildverstehen (image understanding)</li> </ul>
11/2010	University of Applied Sciences BFI Vienna Lecturer  Held lecture on “Human Computer Interfaces”
<b>Student Supervision</b>	
Ph.D.	<ul style="list-style-type: none"> <li>▪ Georg Nebehay, A Deformable Parts Model for One-Shot Object Tracking, Ph.D. thesis, TU Graz, 2016; had postdoc offer to joint Margarita Chli’s group at ETH Zurich; now head of development at Locatee AG, Zurich</li> </ul>
M.Sc.	<ul style="list-style-type: none"> <li>▪ Julian Wagner, Vehicle Detection in Satellite Videos, M.Sc. thesis, TU Vienna; with Planet Labs Inc. (ongoing)</li> <li>▪ Manuel Danner, Cell Segmentation with Convolutional Neural Networks, M.Sc. thesis, TU Vienna; with Molecular Devices LCC. (ongoing)</li> <li>▪ Georg Sperl, Person Classification with Convolutional Neural Networks, M.Sc. thesis, TU Vienna, 2016; now Ph.D. student at IST Austria, Vienna</li> <li>▪ Timo Kropp, Matching Omnidirectional Images in Indoor Environments, M.Sc. thesis, TU Vienna, 2013, now at MeisterLabs GmbH, Vienna</li> <li>▪ Georg Nebehay, Robust Object Tracking Based on Tracking-Learning-Detection, M.Sc. thesis, TU Vienna, 2012</li> </ul>

B.Sc.

- Sergi Sanchez Deutsch, Siamese Networks for Visual Tracking, B.Sc. thesis, TU Vienna; with UPC Barcelona (ongoing)
- Clemens Korner, Object Tracking Using Projective Invariants, B.Sc. thesis, TU Vienna, 2016, now M.Sc. student at TU Vienna
- Michael Boula, Time sync. of networked cameras with non-overlapping views using TTA, B.Sc. thesis, TU Vienna, 2011
- Timo Kropp, Visualisierung von Trajektorien live in Microsoft Bing Maps, B.Sc. thesis, TU Vienna, 2009

### Scientific Awards

03/2014

IEEE Winter Conference on Applications in Computer Vision (WACV)  
Best Paper Award

2009

OVE-GIT Price of the Austrian Electrotechnical Association (OVE-GIT)

2001

TU Wien PRIP Price

2000

Kurt Gödel Scholarship

### Invited Talks

- Introducing Visual Object Tracking from Classical Views to Machine Learning, JKU, Institute of Computer Graphics, Linz, Austria, April, 2019
- Introducing Visual Object Tracking from Classical Views to Machine Learning, SUSTech, School of Computer Science and Engineering, Shenzhen, December, 2018
- Video Analyse und 3D Sensoren, Siemens, Vienna, Austria, April, 2018
- CAT: Calibration and Tracking, WWTF Symposium, Vienna, Austria, September, 2014
- Visual single and general object tracking: Where are we today?, Embedded Computer Vision Workshop, Boston, US, June, 2015
- Multi-Camera Tracking, Intel, Munich, Germany, November, 2014
- Calibrating surveillance camera networks, Heidelberger Bildverarbeitungssymposium, Heidelberg, Germany, July, 2012
- Camera Networks: Calibration and Localisation, Munich Airport, Germany, May, 2012
- Multiple Camera networks, Alcatel, Vienna, Austria, January, 2012
- Localising surveillance cameras, Vienna Airport, Austria, August, 2011
- Camera Calibration in video surveillance, CIR colloquium, Medical University, Vienna, Austria, January, 2011
- Bildanalyse mit vernetzten Kameras, TTZ Leoben, Leoben, Austria, October, 2010
- Localising surveillance cameras, ETH Zurich, Switzerland, October, 2010
- Localising surveillance cameras, CMP colloquium, Czech Technical University, Prague, April, 2010
- Calibration and Tracking with non-overlapping cameras, TU Wien, Austria, October, 2009
- Localising surveillance cameras, IBM, Vienna, Austria, January, 2009
- Simultaneous calibration, detection, and tracking: A current trend in Computer Vision, Smart Systems Day, Baden, Austria, October, 2008
- Plug and Detect (PnD) Automatische Kalibrierung von Überwachungskameras, Smart Systems Day, Vienna, Austria, May, 2007

- Plug and Detect Automatic calibration of distant cameras, Arsenal, July, 2007
- Localisation of distant cameras, Advanced Computer Vision Colloquium, Graz, Austria, June, 2007
- On-line auto-calibration in man-made worlds, Advanced Computer Vision Colloquium, Vienna, Austria, September, 2005
- Is consistent object tracking in multiple cameras with slight overlapping or even non-overlapping fields of view possible?, Smart Systems Day, Vienna, Austria, April, 2004
- Visuelle Sensoren zur Verkehrsüberwachung, Oberösterreichische Landesregierung, Linz, Austria, September, 2002

### Academic Visits

12/2018	SUSTech, Department of Computer Science and Engineering, Shenzhen, China, Prof. Xin Yao
10/2000 - 04/2001	University of Queensland, Brisbane, Australia, Prof. Brian Lovell, Prof. Kurt Kubik
5/2000	INSA, Lyon, France, Prof. Jean-Michel Jolion

### Activities and Memberships

2008 – present	Reviewer  ACM Transaction on Embedded Computing Austr. Association for Pattern Recognition conference (OAGM) Computer Vision and Image Understanding Computer Vision Winter Workshop (CVWW) IEEE Trans. on Pattern Analysis and Machine Intelligence IEEE Trans. on Circuits and Systems for Video Technology IEEE Trans. on Image Processing IEEE Signal Processing Letters IEEE Trans. on Instrumentation and Measurement IEEE Intelligent Systems Int. Conf. on Computer Vision and Pattern Recognition (CVPR) Int. Conference on Computer Vision (ICCV) Int. Conference on Robotics and Automation (ICRA) Int. Conference on Intelligent Transport Systems Int. Conference on Distributed Smart Cameras (ICDSC) Int. Conf. on Adv. Video and Signal-based Surveillance (AVSS) Journal of Mathematical Imaging and Vision Journal of the Optical Society of America Journal of Electronic Imaging Machine Vision and Applications Neurocomputing Optics and Lasers in Engineering Pattern Recognition Signal, Image and Video Processing Workshop on Target Re-Id. and Multi-Target Multi-Cam. Track. (REID-MTMCT)
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2011 – present	<p>Workshop Organizer</p> <ul style="list-style-type: none"> <li>▪ Workshop on VOT in conjunction with ICCV'13, European Conference on Computer Vision (ECCV'14), ECCV'16, ICCV'17, ECCV'18, ICCV'19</li> <li>▪ Computer Vision in Applications Workshop in conjunction with Deutsche Arbeitsgemeinschaft für Mustererkennung conference (DAGM'12)</li> <li>▪ Industrial Surveillance Day, symposium in conjunction with AVSS'11</li> </ul>
2007 – present	<p>Member of Technical Program Committee</p> <ul style="list-style-type: none"> <li>▪ Workshop on Target Re-Identification and Multi-Target Multi-Camera Tracking (ReID-MTMCT), 2017</li> <li>▪ AVSS (2016 – present)</li> <li>▪ CVWW (2012 – present)</li> <li>▪ OAGM (2010 – present)</li> <li>▪ ICDSC (2007 – present)</li> </ul>
2005 – present	Member of OAGM
2004 – present	Member of the IEEE and IEEE Computer Society
2015 – present	AVSS, Steering Committee Member
2015	AVSS, Program Chair
2015	VOT in conjunction with ICCV'15, Member of Technical Committee
2014	ICDSC, Demo Chair
2011	AVSS, Industrial Chair
2009	CONICYT Chilean Science Foundation, Evaluator
2007	ICDSC, Local Arrangements Chair

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Roman Pflugfelder  
 Eisenhüttelgasse 21, 2380 Perchtoldsdorf, Austria  
 +43 (0)699 11674334  
[roman.pflugfelder@gmail.com](mailto:roman.pflugfelder@gmail.com)