MARCEL KAUFMANN

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CAPABILITIES AND EXPERTISE

Strategic design of experiments and hands-on experience in Earth observation, computer vision, robotics and space education:
· Development of algorithms for satellite based pipeline monitoring
· Characterization of new time-of-flight [ToF] 3D camera sensors
· Utilization of 6-axis robots for automating experiments
· Mentoring the United Space School Class of 2013 in Houston, TX

Teamwork, communication and soft skills:
· Management of international projects and team leadership
· Excellent communication skills, particularly in presenting
  complex data to both scientists and non-scientists
· High comfort level with challenging tasks

EDUCATION

University of Applied Sciences Darmstadt	Apr 2015 to Nov 2016
M.Sc. in Photonics and Computer Vision	Darmstadt, Germany

· Thesis: False Alarm Reduction in Unsupervised Synthetic Aperture
           Radar Coherent Change Detection [SAR-CCD] Systems
· Thesis grade: 1.0 [Scaled 1.0 to 5.0; 1.0 = best]
· Cum. GPA: 1.9 [Scaled 1.0 to 5.0; 1.0 = best]

University of Applied Sciences Darmstadt	Oct 2011 to Mar 2015
B.Sc. in Photonics and Computer Vision	Darmstadt, Germany

· Thesis: Characterization of Time-of-Flight Camera Prototypes
· Thesis grade: 1.3 [Scaled 1.0 to 5.0; 1.0 = best]
· Cum. GPA: 2.2 [Scaled 1.0 to 5.0; 1.0 = best]

RELEVANT WORK EXPERIENCE

S[&]T Corporation B.V.	Nov 2016 to present
Scientific Software Engineer	Delft, The Netherlands

· Develop R&D solutions for space, science and defence
· Implement algorithms for satellite data processing and analysis
· Utilize spaceborne and ground-based radar systems for research projects

Orbital Eye B.V. and S[&]T Corporation	Apr 2016 to Oct 2016
R&D Intern as part of the Erasmus Programme and Master's Thesis	Delft, The Netherlands

· Developed algorithms for SAR-CCD systems in MATLAB
· Increased the ground coverage up to 97% in boundary regions
· Reduced the false alarm rate by more than 80%

Basler AG and University of Applied Sciences Darmstadt	Jun 2015 to Feb 2016
Research Assistant	Darmstadt, Germany

· Characterized the accuracy and precision of ToF 3D cameras
· Implemented a GenICam interface in C++
· Published at the *Oldenburg 3D Days 2016* in Germany

Basler AG	Nov 2014 to Mar 2015
Preliminary R&D Intern and Bachelor's Thesis	Ahrensburg, Germany

· Conducted research on ToF camera prototypes
· Implemented a ToF camera driver for the open source MILAN software in C++
· Identified a firmware bug which lead to an improvement in further prototypes

Robert Bosch GmbH	Sep 2013 to Feb 2014
Engineering Placement Student	Reutlingen, Germany

· Tested and integrated an automatic inspection tool for detecting
  macroscopic defects in wafer surfaces into the running production
· Simulated the tool algorithms in MATLAB and reduced false positive defects

SKILL SUMMARY

Programming	Science & Engineering	Computer	Soft & Personal	Languages
C/C++	Image Processing	Windows 7	Teamwork	English [fluent]
OpenCV |PCL	Computer Vision	Mac OS	Communication	German [native]
Qt |CMake	Robot Vision	Ubuntu	Presentation	Dutch [beginner]
MATLAB	Optics |Zemax	Office |LaTeX	Stress Management	

INTERNATIONAL SPACE RELATED EXPERIENCE

Space Generation Congress and International Astronautical Congress   Sep 2016
Delegate and DLR Scholarship Winner   Guadalajara, Mexico
· Presented results of the SGAC Earth Observation working group at SGC
· Represented Germany as one of two DLR Standout Student Scholarship winners

United Space School   Jul 2013 to Aug 2013
Team Leader and Mentor   Houston, TX, USA
· Supervised the international "Robotics and Space Suit Team"
· Cooperated with the University of Houston Clear Lake and NASA's JSC

International Space School   Jul 2007 to Aug 2007
National Representative for Germany   Houston, TX, USA
· Worked in an international team of 25+ nations
· Gained intercultural team experience and planned a manned mission to Mars

HONORS AND AWARDS

DLR Standout Student Scholarship   2016
· Honored to attend the 15th SGC and the 67th IAC in Guadalajara, Mexico

Global Nominee - NASA Space Apps Challenge Noordwijk, The Netherlands   2016
· Developed a flood risk application in a team of five

Global Nominee - NASA Space Apps Challenge Frankfurt, Germany   2015
· Solved the Spacebot Stereo Vision Challenge in a team of five

Gisbert Manskopf Award ("Abiturientenpreis")   2009
· Award for community active students presented to one individual annually

Third Place nationwide - Invent a Chip   2008
· Invented a Driving Assistance Chip and implemented it in Verilog
· Coded a demo in Java to demonstrate the chip functionality

First Place - NASA Competition at secondary school   2007
· Honored to represent Germany among 25+ nations at Space School

PUBLICATIONS AND GIVEN LECTURES

Oldenburg 3D Days 2016   Feb 4th, 2016
Characterization and Calibration of a pulsed Time-of-Flight Camera   Oldenburg, Germany
· Presented research results at the Oldenburg 3D Days
· Published as first author in Photogrammetrie Laserscanning Optische 3D-Messtechnik,
  published by Luhmann/Schumacher, ISBN 9783879076048, 2016, p. 218-225

Association for Astronomy and Space Technologies Darmstadt   May 5th, 2014
Mission To Mars   Darmstadt, Germany
· Discussed the plans of United Space School 2013, NASA and Mars One

VOLUNTEER WORK

Academic Committees, Dept. of Mathematics and Science   2012 to 2016
Faculty Council, Examination Board and Student Council   Darmstadt, Germany
· Represented the student body publicly as spokesperson
· Managed decisions regarding the faculty's budget and new employees