

# MARKUS D. SOLBACH

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## CURRICULUM VITAE

### EDUCATION

- 2015 – Present* PhD student under supervision of Prof. John K. Tsotsos, Active Vision for Robotics at York University, Canada
- 2014* Master of Science (Computer Science) at University of Koblenz, Germany
- 2014* Exchange Semester in Spain at the University of the Balearic Islands, Spain
- 2013* Bachelor of Science (Computer Science) at University of Koblenz, Germany
- 2012–2013* Exchange Semester at Fraunhofer IDM at Nanyang Technological University, Singapore

### SKILLS

- Programming Languages* C/C++, Python, Java, Bash, MATLAB, JavaScript, Objective-C, Octave, PhP, Assembler, ...
- Frameworks* OpenCV, ROS, Gazebo, PCL, OpenGL, PyTorch, Caffe, TensorFlow, Fraunhofer VisionLib, ...
- Software* Linux, MacOS, Windows, Microsoft Office, Adobe Creative Suite, Vim, Microsoft Projects, Git, SVN, Mercurial, Xcode, IntelliJ, CLion, PyCharm, Pentaho, ...
- Database* PostgreSQL, MySQL, MongoDB, SQLite

### PROFESSIONAL EXPERIENCE

- 2015 – Present* Research Assistant at York University, Canada
  - Computer Vision, Active Vision, 3D Vision, Robotics, Machine Learning
- 2015 – Present* Teaching Assistant at York University, Canada
  - 2019 | Winter: 1028 Discrete Math for Engineers
  - 2018 | Fall: 3451 Signals and Systems
  - 2018 | Winter: 4421 Introduction to Robotics & 4443 Mobile User Interfaces
  - 2017 | Fall: 4443 Mobile User Interfaces & 2030 Advanced OO Programming
  - 2017 | Winter: 1028 Discrete Math for Engineers & 1022 Mobile Programming
  - 2016 | Fall: 1012 Net-centric Introduction to Computing
  - 2016 | Winter: 1022 Intro. to Software Dev. & 2021 Computer Organization
  - 2015 | Fall: 1012 Introduction to Computer Science & 3451 Signals and Systems
- 2017 – 2018* Part-Time Teacher at St. Clair College, Toronto
- 2017* Part-Time Consultant at Altius Analytics Labs Inc., Toronto
- 2014 – 2017* Consultant & Developer at DSA GmbH/SKYLIZE
  - Developed Build Server implementation for large scale Java projects
  - Created Pentaho plugin for live master data editing
  - Designed and implemented a virtual-machine environment
- 2013 – 2014* Research Assistant at the Active Vision Group of the University of Koblenz, Germany
  - Developed autonomous Mars exploration robot for DLR (German Aerospace Center)
  - Implemented vision-based system for rehabilitation support

- 2012 – 2013 Research Assistant at Fraunhofer IDM at Nanyang Technological University, Singapore
- Designed and implemented automatic initialization of model-based 3D tracking (Bachelor of Science thesis)
- 2012 Research Assistant at the Institute of Software Engineering of the University of Koblenz, Germany

### **PUBLICATIONS**

- 2018 Rosenfeld, Amir, Solbach, Markus D. and Tsotsos, John K.. "Totally Looks Like-How Humans Compare, Compared to Machines." Asian Conference on Computer Vision. Springer, Cham, 2018.

Tsotsos, John K., Kotseruba, Iuliia, Rasouli, Amir and Solbach, Markus D.. "Visual attention and its intimate links to spatial cognition." Cognitive processing 19.1 (2018): 121-130.

Rosenfeld, Amir, Solbach, Markus D. and Tsotsos, John K.. "Totally Looks Like-How Humans Compare, Compared to Machines." Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops. 2018.

Solbach, Markus D., Voland, Stephen, Edmonds, Jeff and Tsotsos, John K.. "Random Polyhedral Scenes: An Image Generator for Active Vision System Experiments." arXiv preprint arXiv:1803.10100 (2018).

Rosenfeld, Amir, Solbach, Markus D. and Tsotsos, John K.. "Totally-Looks-Like: A Dataset and Benchmark of Semantic Image Similarity." Journal of Vision 18.10 (2018): 136-136.

- 2017 Solbach, Markus D., Tsotsos, John K.. "Vision-Based Fallen Person Detection for the Elderly." Computer Vision Workshop (ICCVW), 2017 IEEE International Conference on. IEEE, 2017.

- 2016 Solbach, M., et al. "Robust world-centric stereo EKF localization with active loop closing for AUVs." Pattern Recognition and Image Analysis 26.1 (2016): 205-215.

- 2015 Bonin-Font, F., Pep Lluís Negre Carrasco, A., Solbach, M., Oliver, G. Stereo SLAM for Robust Dense 3D Reconstruction of Underwater Environments. In MTS/IEEE Oceans, 2015.

### **EDITORIAL DUTIES**

- Review* International Conference on Computer Vision, International Conference on Computer Vision Systems, IET Computer Vision Journal, Signal, Image and Video Processing Journal

### **PROFESSIONAL AFFILIATIONS**

- 2016 – 2018 President of computer science and engineering graduate student's association, York University
- 2016 – 2017 Students' rep. on the Tenure & Promotion Committee, York University
- 2015 – 2016 Vize-president of computer science and engineering graduate student's association, York University
- Languages* German (Mother tongue) · English (Fluent) · Spanish (Beginner) · Latin

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