

# Felix Endres

## Curriculum Vitae

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### Research Interests

Computer vision and 3D perception, simultaneous localization and mapping, machine learning

### Education

- Since 2009 **Ph.D. Student**, University of Freiburg, Germany  
Advisor: Prof. W. Burgard, Autonomous Intelligent Systems Lab  
Ph.D. Thesis: *Indoor perception for mobile robots*
- 2009 **M.S. Applied Computer Science**, University of Freiburg, Germany  
Specializations: artificial intelligence and robotics  
Master thesis: *Scene Analysis from Range Data*  
Grade: A
- 2004 **B.S. Information Technology**, University of Cooperative Education Stuttgart, Germany  
Specializations: project management and network technology  
Thesis: *Elaboration of Secure Resource Access Management* at IBM Frankfurt, Germany  
Grade: A-

### Work Experience

- since 2009 **Research assistant**, Autonomous Intelligent Systems, University of Freiburg, Germany  
Software development for the mobile manipulation robots omniRob (KUKA) and PR2 (Willow Garage). Main responsibilities:
- *2D and 3D mapping*
  - *Perception and manipulation of doors*
  - *ROS-based system integration*
- 08/2007 **Guest Lecturer**, NIIT Centre, Kumasi, Ghana  
to 09/2007 Teaching Linux server administration, Oracle SQL and Microsoft Office
- 10/2004 **Software Engineer**, BearingPoint, Frankfurt, Germany  
to 09/2005 Development and deployment of software (Java, XML) in the financial industry
- 05/2004 **Bachelor Thesis**, IBM Strategic Outsourcing, Frankfurt, Germany  
to 08/2004 A concept study for secure resource access management between IBM and Deutsche Bank
- 06/2003 **Internship**, IBM Almaden Research Center, CA, USA  
to 09/2003 Self-tuning query optimization based on statistics for the DB2 relational database system
- 10/2001 **Internship**, IBM Stuttgart, Germany  
to 12/2001 Software Engineering and Operating Systems

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## Professional Skills

Applied Knowledge	Visual SLAM, graph optimization, self-calibration, various regression techniques, robust estimation, robot kinematics, dimensionality reduction
Programming Languages	Proficient in <b>C++</b> (OpenCV, ROS, PCL, Eigen, g <sup>2</sup> o, OpenGL), <b>Python</b> , Java, Unix shell scripting, web development (HTML, CSS, JavaScript), and SQL database systems
Open Source Projects	Main author of <b>RGBDSLAM</b> (github) and dynamic_door_manipulation (ros.org), code contributions to OpenCV and other projects on github
Presentation Skills	<b>Invited talk</b> about RGB-D SLAM at the ROS Summer School 2014 at the University of Applied Science in Aachen, Germany <b>Presentations at international robotics conferences</b> (RSS'09, ICRA'12, ICRA'13, IROS'13, IROS'14).
Languages	German: native language English: fluent (speaking, reading, writing) French, Spanish: basic

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## High Impact Publications

F. Endres, C. Sprunk, R. Kuemmerle, and W. Burgard. **A Catadioptric Extension for RGB-D Cameras**. In Proc. of the IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS), Sep 2014.

F. Endres, J. Hess, J. Sturm, D. Cremers, and W. Burgard. **3D Mapping with an RGB-D Camera**. IEEE Transactions on Robotics, 30(1):177–187, Feb 2014.

F. Endres, J. Trinkle, and W. Burgard. **Learning the Dynamics of Doors for Robotic Manipulation**. In Proc. of the IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS), Nov 2013.

J. Sturm, N. Engelhard, F. Endres, W. Burgard, and D. Cremers. **A Benchmark for the Evaluation of RGB-D SLAM Systems**. In Proc. of the IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS), Oct 2012.

F. Endres, J. Hess, N. Engelhard, J. Sturm, D. Cremers, and W. Burgard. **An Evaluation of the RGB-D SLAM System**. In Proc. of the IEEE Int. Conf. on Robotics & Automation (ICRA), May 2012.

F. Endres, C. Plagemann, C. Stachniss, and W. Burgard. **Unsupervised Discovery of Object Classes from Range Data Using Latent Dirichlet Allocation**. In Proc. of Robotics: Science and Systems (RSS), Jun 2009.

C. Plagemann, F. Endres, J. Hess, C. Stachniss, and W. Burgard. **Monocular Range Sensing: A Non-Parametric Learning Approach**. In Proc. of the IEEE Int. Conf. on Robotics & Automation (ICRA), Pasadena, CA, USA, 2008.