

# Frederik Ebert

## Curriculum Vitae

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### Info

Birth 16.01.1993 (Munich)  
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### Education

2014 – today **Master Program Robotics Cognition Intelligence**, *Technical University Munich*.  
2010 – 2014 **Bachelor of Science**, *Mechatronics Engineering and Information Technology*,  
Technical University Munich.  
2012 – 2013 **Exchange Student**, **Tongji-University, Shanghai, China**, 2 semesters.  
    ◦ Joined Student team taking part in Formula Student China, design of an electric  
    race car  
    ◦ Design and manufacturing of drive-system and battery package for race car  
    ◦ Studying Chinese, passed HSK4 (official Chinese proficiency test with 6 levels)  
2002 – 2010 **Abitur, Secondary Education**, *Lion-Feuchtwanger Gymnasium*, Munich.

### Academic Projects

2016 **Learning by Demonstration using Gaussian Mixture Regression**,  
*Practical Project*, Department for Dynamic Human-Robot-Interaction for Automation  
Systems, Prof. Dongheui Lee, Technical University Munich.  
2015 **Deep-Learning for Robotic Grasping**, *Practical Project*, Department for  
Biomimetic Robotics and Machine Learning, Prof. Van der Smagt, Technical University  
Munich.  
2014 **Nonlinear Model-Predictive Control in the Application of Constrained  
Manipulator control**, *Bachelor Thesis*, Department for Dynamic Human-Robot-  
Interaction for Automation Systems, Prof. Dongheui Lee, Technical University Munich.

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## Student Assistant

- 2014 - today **German Aerospace Center (DLR), Institute for Mechatronics, Oberpfaffenhofen.**
- Development of dynamic walking controller for series-elastically actuated robot leg
  - Mechanical design and testing of series-elastically actuated robot leg
- 2011 - 2012 **Institute for Cognitive Systems, Technical University Munich, Prof. Gordon Cheng.**
- Design and manufacturing of hydraulic actuator using “Moog-servo valve” for humanoid robot
  - Design and manufacturing of camera orienting system for humanoid stereo-vision
  - Simulation and dimensioning of force-sensing cells for robotic skin using Ansys

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## Internships

- 2010 **BMW Group, tool design department, Munich, Germany.**
- Setting up robot- and pneumatic devices for production line
  - Engineering of stamp-tools for automotive body-parts
- 2009 **Audi Hungaria Motor Kft, Engine Production Plant, Győr, Hungaria.**
- Award from the Bavarian Entrepreneurial Association for an outstanding project at "Jugend-Forscht" Science Fair
- 2009 **Fraunhofer Institute for Production and Automation (IPA), Stuttgart, Germany, Design of a light-weight-robot concept using “SolidWorks”.**
- 2008 - 2009 **Department for Intelligent Autonomous Systems, Prof. Beetz, Technical University Munich.**
- Design of hard- and software for exoskeleton-robot “R-BASE”
  - Programming on Ubuntu, Inverse Kinematics, PID-Control

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## Key Technical Skills

### Software Engineering

- Languages **C/C++, Python, Matlab, Java.**
- Software-Packages **Google Tensorflow (Machine Learning), Theano (Machine Learning), Caffe (Deep-Learning), Robot Operating System (ROS).**
- Platforms **Linux, Windows.**
- Version-control **git.**

### Mechanical and Control Engineering

- CAD **CATIA V5, PTC Creo, Solid Works.**
- FEM **Ansys Workbench and APDL.**
- General Analysis **Matlab/Simulink, Maple.**

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## Competitions and Awards

- 2009 **“Jugend-Forscht” Science Fair**, *self-designed second generation exoskeleton-robot “R-BASE”*, 3. prize in German national competition (10.000 participants) .
- 2009 **German Aerospace Centre (DLR) Special Award for “Jugend-Forscht” Science Fair Project**, *Website of DLR award*.
- 2008 **“Jugend-Forscht” Science Fair**, *self-designed first generation exoskeleton-robot “EMVAS”*, 2. prize in Bavarian federal competition.

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## Languages

- English **fluent**
- Mandarin **advanced (HSK4 of 6 levels)**
- French **intermediate**
- German **native**

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## Interests and Activities

- Sports **Swimming, Sailing, Skiing**
- Music **Playing piano for ca. 15 years.**