

# Binru Yang

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## RESEARCH EXPERIENCE AND EMPLOYMENT

- 01/20- now **PhD student: Max Planck Institute & Matters of Activity Excellence Cluster & Nyakatura Lab, Potsdam & Berlin** Germany
- 15/02- 17/09 **Diploma Thesis, Stuttgart** Germany  
**Title: " Design and layout of additive vehicle structures with high functional integration"**  
  
German Aerospace Center, Institute for Vehicle Concepts,  
Group: 1,001 million turnover/ more than 8,000 employees in 2017; [www.dlr.de](http://www.dlr.de)  
Supervisors: Nicolas Unger, Sebastian Vohrer.  
  
Achievements
- Literature research and evaluation of possible applications in the field of acoustics, thermal comfort (air conditioning), static and dynamic stiffness under the concept of the "NGC InterUrban Vehicle" <https://verkehrsforschung.dlr.de/de/projekte/ngc-iuv>
  - Evaluate possible technical variations based on the restrictions, construction of an innovative alternative model (Catia)
  - Design of a new air conditioning concept according to countercurrent heat exchange system (Catia)
  - Development of a design and optimization strategy and topology optimization model with QFD method and finite element analysis (Optistruct and SolidThinking Inspire)
    - In Hypermesh modify element type, size and layer height according to the Bamboo model
    - Simplify model and build up equivalent boundary conditions at the same time
  - Adapt of the 3D model for 3D printers (Lattice-cell structures on Voxeljet VX200 HSS and ribbed structures)
- 06/18- now **Project member: "Fluglicht", Dresden** Germany  
**Student project, [www.fluglicht.com/](http://www.fluglicht.com/)**  
Project leader: Peter Jüstel
- Analyze flight movements of birds and realization of a mechanical model
  - Evaluate manufacturing processes and materials
  - prototype construction
- 10/18-02/19 **Project team member, Dresden** Germany  
**Hybrid structure with specific ribs**  
  
Institute of Lightweight Engineering and Polymer Technology,  
240 Mitarbeiter,  
<https://tu-dresden.de/ing/maschinenwesen/ilk/das-institut>  
Reporting line : direct : Jan Luft, Sebastian Spitzer. Project manager : Robert Kupfer
- Familiarization with the topic of rib-reinforced (injection molded) organo sheet plate structures (structures, use cases, loads, failure effects, materials, processes)
  - Execution and evaluation of an analytical and parameter study to investigate parameter sensitivity
- 09/18-12/18 **Student Assistant, Dresden** Germany  
  
Institute of Lightweight Engineering and Polymer Technology,  
Supervisor: Oliver Weissenborn
- Creation of a cube with by hand lamination
- 10/17- 12/19 **Semester Thesis, Dresden** Germany

**Title: "Process inspection and monitoring for pultrusion (CF/PA6) of thermoplastic reinforcement bars for carbon concrete"**

Institute of Lightweight Engineering and Polymer Technology,  
Supervisor: Daniel Wohlfahrt

- Setting of process parameters and analysis of their interactions
- Analysis of results with microscopy, e.g. micrograph analysis (fiber volume content, fiber distribution)

10/17-01/18 **Student research project Hand Bandage, Dresden** Germany

Institute of Lightweight Engineering and Polymer Technology,  
Supervisor: Martin Dannemann

- Literature research of anatomy, therapy possibilities and adjustability of textiles
- Use of textile-integrated sensor technology
- Structure of textile, thread architecture and material with graded elasticity against motion
  - Study the force-elongation curve of textiles, yarns and materials
  - Research structural and mechanical anisotropy properties of knitted fabrics, embroidery, fabrics and braids

10/17-01/18 **Student research project Bicycle Shoe, Dresden** Germany

Institute of Lightweight Engineering and Polymer Technology,  
Supervisor: Anja Winkler

- Create a pneumatic/electromagnetic solution to change the stiffness of the sole depending on the situation
- Selection of suitable sensors and actuators

03/15-08/15 **Bachelor Thesis, Shanghai** China  
**Title: "Overall structure of CNC roll grinder and design of Wheel head structure"**

University of Shanghai for Science and Technology,

- Literature searches of the disc head movement system of the roll grinding machines
- Design wheel head structure integrated with three axis feed mechanisms, including U-axis microfeed mechanism based on the principle of eccentric shaft and lever motion
- Check the strength of the spindle with Ansys

03/14-07/14 **Team leader\ Project – Epicycloidal Gear Model, Shanghai** China

University of Shanghai for Science and Technology,  
Supervisor: Prof. Jianmin Zhu

- creation of three epicycloidal gearboxes with six gearboxes - models to explain the theory, development of a mechanical solution by itself
- Construction of a prototype

10/13-01/14 **Project leader\ Project - Combined drawing tool, Shanghai** China

University of Shanghai for Science and Technology,  
Supervisor: Prof. Jianmin Zhu

- design and development of a combination of drawing triangle and compass with freely adjustable angle and fixation possibility
- Construction of a prototype (aluminium)

## EDUCATION

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2016-now	<b>TU Dresden, Dresden</b> <b>Lightweight structure and Polymer Technology</b> Degree: Dipl. Mechanical Engineering; expected end of studies: Dec 2019 Current grade average: 2.0-2.2	Germany
2011-2015	<b>University of Shanghai for Science and Technology, Shanghai</b> <b>Mechanical Design, Manufacture and Automation</b> Final grade: 2.2	China

2014-2015

**Furtwangen University of Applied Sciences, Villingen-Schwenningen**  
Exchange Program  
Specialisation: New Product Development and Entrepreneurship

Germany

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## LANGUAGE-SKILLS

Chinese (Mandarin): mother tongue  
German: fluent

English: fluent

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## IT-KNOWLEDGE

MS-Office: advanced (Word, Excel, PowerPoint, presentation);

3D CAD Modeling Software und CAD: advanced (Catia, Hypermesh, SolidThinking Inspire, Optistruct, SiemensNX), intermediate (Ansys)

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## AWARDS

2014 Patent, publication number CN104021720A: Epicyclic gear train experiment training aid China

2014 Patent, publication number CN103568663A: A compact of drafting tool China

Jul2014 First Prize, The National Undergraduate Mechanical innovation design competition China

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## LEISURES

- Chinese calligraphy
- philosophy
- HipHop dance House in group
- painting
- Karate

Berlin, 15.01.2020



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