

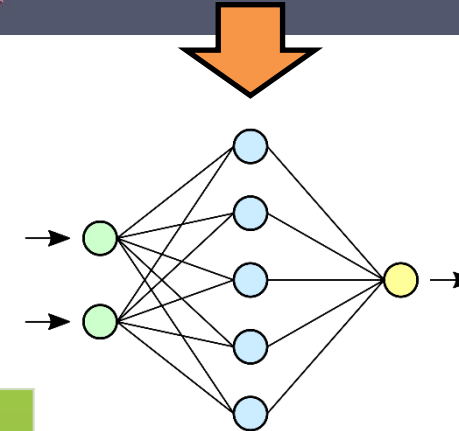
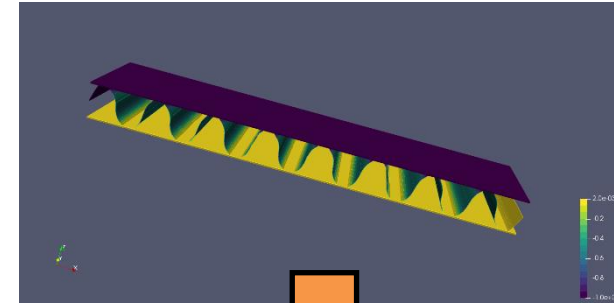
## Machine Learning for the Mechanical Modeling of Corrugated Board Compression

Ongoing research at the Institute for Paper Technology of the Technische Universität Darmstadt is focused on the analysis of structural integrity and mechanical model of the compression of corrugated boards. The utilization of Machine Learning (ML) is anticipated to significantly enhance the accuracy of predictive models due to the reduced dimensionality compared to other approaches.

The objective of this initiative is to create more accurate and faster prediction models using ML to interpret complex patterns in material structures. This not only involves the understanding of relevant features of the stress analysis during the compression but also the building of the model and experimental validation.

To further this research, we are looking for students who can work on such a project. For those who join, this project offers more than just theoretical study; it provides hands-on experience in simulation, machine learning and experimental validation.

In today's rapidly evolving academic and industry landscape, these specialized skills hold enormous significance. The experience gained from this endeavor not only elevates academic standing but also enhances their prospects in contemporary job markets.



Papierfabrikation  
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**Start:** As of now or  
by appointment

### Required Knowledge

- Python or MATLAB

At least two of the following basics:

- Machine Learning;
- Numerical Analysis;
- Structural Mechanics;
- Statistics.

### Work packages

- Initial state-of-the-art review
- Data collection of stresses for different geometries via simulation
- Modeling
- Verification and validation
- Documentation & Presentation of the results

### Organizational

- Weekly meetings with the supervisor
- Language: English

Paper engineering  
skills not required!