

ASHWIN BERNARD

Dorotheenstrasse 5B , 30419, Hannover , Germany | ashwinbernard.dev@gmail.com

+49 15510774696 | [LinkedIn: linkedin.com/in/ashwinbernard](https://www.linkedin.com/in/ashwinbernard)

Professional Summary

Master's student in Optical Technologies at Leibniz University Hannover with three years of professional software engineering experience. My interests lie at the intersection of additive manufacturing, laser material processing, and software-driven engineering systems. Through my recent research, I have gained hands-on experience with laser powder bed fusion (PBF-LB/M), X-ray CT evaluation, CAD design, and experimental data analysis, supported by a strong programming background in Python and MATLAB.

Education

Leibniz University Hannover, Germany

Master of Science – Optical Technologies

Expected Graduation: September / 2027

- **Focus Areas:** Design and production of Opto-electronic Systems, Laser material Processing, and Optical Measurement Systems.

Institute for Product Development and Equipment Engineering (IPeG) – Leibniz University Hannover

Student Researcher: Thermal Post-Processing of Additively Manufactured Particle Damping Structures

Jun 2025 – Sept 2025

- Designed and carried out a systematic experimental framework (based on VDI 2206) to evaluate the effects of heat treatment on LPBF-manufactured Scalmalloy particle damping structures.
- Performed non-destructive X-ray CT evaluation of LPBF components to analyze internal powder cavities and correlate heat treatment profiles with particle agglomeration and sintering behaviour.
- Developed MATLAB scripts for processing high-frequency vibration data (200–2000 Hz), reducing sensor noise, and quantifying geometry-dependent damping performance.

- Designed and modified CAD models in Autodesk Inventor to improve manufacturability and accommodate post-processing constraints.
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APJ Abdul Kalam Technological University, India

Bachelor of Technology – Electrical and Electronics Engineering

Aug 2016 – Aug 2020

Academic Performance: 8.21 / 10

Professional Experience

Software Engineer – Experion Technologies, India

Jan 2021 – Mar 2024

- Developed and maintained production software using JavaScript, TypeScript, and React while working within agile, cross-functional engineering teams.
 - Engineered custom data-processing logic and automated workflow solutions to handle complex user and system data pipelines.
 - Collaborated with multidisciplinary teams to translate complex requirements into scalable software solutions.
 - Acted as a technical mentor, successfully training and onboarding junior interns in modern software development frameworks and problem-solving methodologies.
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Skills

- **Additive Manufacturing & Hardware:** Laser Powder Bed Fusion (PBF-LB/M), Additive Manufacturing Process Chain, Scalmalloy, Post-processing.
- **Programming:** Python, MATLAB, JavaScript, TypeScript, React.
- **CAD & Design:** Autodesk Inventor.
- **Characterisation & Testing:** X-ray CT, Signal Processing, Vibration Testing, Experimental Data Analysis
- **Languages:** English (Fluent, IELTS Academic 8.0), German (Basic, A1)