

Join and help us make a difference in the world of laser technology

Scientific associates in the field of artificial intelligence

Join our team at the **Institut für Strahlwerkzeuge (IFSW), University of Stuttgart**, where we are looking for individuals with a passion for lasers, optics, and photonics. Our institute is committed to shaping the global progress of laser technology in manufacturing through cutting-edge research and teaching. Our vision is to make laser technology universally applicable in manufacturing, and with our location in Stuttgart - one of the major industrial sites in Germany - we collaborate with a wide range of companies, from international players to small startups, in industries such as automotive, optics, photonics, manufacturing, healthcare, and semiconductor technology.

We are seeking candidates to join our team in the field of **artificial intelligence for laser materials processing**. You will have the opportunity to work on a variety of applications, depending on your interests.

Firstly, the work will involve controlling highly flexible, multi-variate laser processes using **artificial intelligence** and **machine learning**. For example, **reinforcement learning** can be used to control the numerous parameters required to achieve high-quality results in modern laser processing. Additionally, **data-driven models** in combination with **model predictive control** approaches can be utilized to improve results.

Secondly, we aim to take full advantage of the **many degrees of freedom** that modern lasers and laser machines provide, such as pulse duration, wavelength, pulse energy, repetition rate, beam shapes, and complex part motion (e.g. on Stewart platforms). However, with such a large number of degrees of freedom, process developers face the "**curse of dimensionality**". To overcome this challenge, optimization techniques including **machine learning**, **data science**, and **artificial intelligence** will be necessary.

We provide:

- Option to pursue a **PhD**
- Salary of **TV-L 13 (100 %)**
- Family-friendly working environment
- Strong academic and industrial connections
- Opportunities to expand your professional network

The University of Stuttgart would like to increase the number of women in the scientific field and is therefore particularly interested in applications from women. Severely disabled persons are given priority in the case of equal suitability. The employment process of scientific employees is carried out by the university's central administration.



You provide:

- A Master's degree in **Engineering, Physics, Computer Science**, or equivalent
- Knowledge in Lasers or Optics is advantageous
- Capability to work independently
- Enthusiasm to acquire new knowledge

Contact Information for Inquiries and Applications:

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