

## Antenna Engineering Internship

Ulm (Germany), 31<sup>st</sup> May 2021,

For the department "Active & Passive Antennas" we are looking for an **Intern for Investigation and Simulation of Innovative Antenna Concepts Active Electronically Steerable Antennas (AESAs)** at our location in Ulm (Germany).

The department is involved in the integral development of both active and passive antennas for airborne, naval, ground-based radar, *Electronic Warfare* (EW) and data link systems. Current and future [1, 2] antenna engineering activities cover a wide range of stand-alone antennas and AESAs for civil and military applications such as the following product portfolio examples:

- Naval Sensors ([TRS-4D](#), [NESIS 4000](#),...)
  - Ground Surveillance Radars ([COBRA](#), [ASR-NG](#))
  - Border Control ([SPEXER 2000 3D MKII](#))
  - Passive Radars ([Twinvis](#))
  - Airborne Surveillance ([PreciSR](#))
  - Airborne EW Systems ([Kalaetron](#))
  - Eurofighter ([Radar MKI](#))
- Multi-functional Sensor Demonstrators towards the *Future Combat Air System* ([FCAS](#)) program and its 6G *Next Generation Fighter* (NGF).



**Figure:** HENSOLDT leads FCMS [3]

Being the last one the benchmark of the internship, where innovative AESA aperture and Front-end transition concepts for multifunctional applications [4] are to be investigated. Antenna and mm-Wave design [5], manufacturing and verification internship workload is to be expected.

### References

- [1] J. van Bezouwen and M. Brandfaß, "Technology Trends for Future Radar, Microwave Journal," HENSOLDT Sensors GmbH, 14 November 2017. [Online]. Available: <https://www.microwavejournal.com/articles/29367-technology-trends-for-future-radar>.
- [2] M. Brandfass, M. Boeck and R. Bill, "Multifunctional AESA Technology Trends - A Radar System Aspects View," in IEEE International Symposium on Phased Array System & Technology (PAST), Waltham, MA, 2019.
- [3] "German FCMS Consortium," FCMS Germany, 2020. [Online]. Available: <https://fcms-germany.net/>.
- [4] G. C. Tavik, C. L. Hilterbrick, J. B. Evins and et.al, "The Advanced Multifunction RF Concept," IEEE Transactions on Microwave Theory and Techniques, vol. 53, no. 3, pp. 1009-1019, 2005.
- [5] R. W. Kindt and J. T. Logan, "Benchmarking Ultrawideband Phased Antenna Arrays," IEEE Antennas & Propagation Magazine, pp. 34-47, June 2018.

## Job Description

The following activities are part of the internship:

- CAD-Design of innovative antenna concepts, transmission line and connector transitions,
- Electromagnetic simulation using modern SW tools (i.e., CST Microwave Studio),
- Conceptual design, optimization and prototyping of antenna-to-TRM innovative transitions,
- Manufacturing and measurement of designed prototypes,
- Documentation of work and presentation of results.

## Additional Job Description

- Pursuing a Master's Degree in Electrical / Telecom Engineering or equivalent,
- Academic background in the field of EM involving topics such as microwave engineering and antenna design,
- Programming experience in scripting tools such as MATLAB or Python,
- Basic working experience with industrial electromagnetic design tools like CST MWS or ANSYS HFSS and PCB layouting with ADS, GENESYS or similar,
- Basic knowledge of RF measurement devices (VNA, PNA) and ideally with antenna characterization in anechoic chambers,
- Innovative and self-motivated attitude (think outside-of-the-box),
- Strong interpersonal and organizational skills,
- Fluent in English (German is an asset).

## We Provide

- Ambitious work and opportunity to be involved in State-of-the-Art engineering projects,
- Daily supervision by a highly motivated team willing to mentor and support the intern,
- Flexible working times and internship duration,
- Adaptability on university regulations and deadlines,
- Possibility of internship extension to a Master's Thesis.

## Interested? Contact information:



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