

Additive Manufacturing Enabled Robot Mechanism Design Towards Food-grade Applications

Kitchen of the Future

We believe that tomorrow's kitchens will be safe, clean and stress-free. Thanks to technology.

Fewer people than ever want to work in gastronomy kitchens. Our robotic kitchen assistant *Fred* gives kitchen staff a helping hand, making their work more efficient and enjoyable at the same time. Empowered with a state-of-the-art vision system and a sleek food-grade appearance, *Fred's* favorite pastime is grilling hamburger patties autonomously, but he is eager to learn many more tasks.

Why join us

You will be at the heart of a young company. Right from the start you will take responsibility and self-direction. You'll profit from a direct and open working culture with a focus on learning and growth. You will have flexible working hours at our office at TUM Incubator on Garching University Campus. Prepare to become a part of the vibrant Munich Tech Startup community and establish valuable contacts.

Your opportunity

- Evaluate materials and processes towards suitability for Additive Manufacturing (AM) of food-grade components [1]
- Research general AM design rules [2] [3] [4]
- Develop CAD design optimized towards AM in STL format for a 2 DoF-SCARA-Robot
- Drive manufacturing of your design with our industry partner. You will have a tangible result at the end of your thesis.

Your skills

- Bachelor or Master student in Robotics, Mechanical Engineering or similar
- Experience in at least one relevant CAD environment (AutoCAD, CATIA, Onshape etc.)
- Ideally first experiences with additive manufacturing
- Seek responsibility actively and communicate with confidence
- Fluent in English or German

Do you want to make *Fred's* fantastic journey come true? If you think you are a good fit, we strongly encourage you to reach out to us.

Contact:

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Literature

- [1] A. Locker, "12 Vital Facts About Food Safe 3D Printing," 2016. [Online]. Available: <https://all3dp.com/1/food-safe-3d-printing-abs-pla-food-safe-filament/>. [Accessed 16 03 2018].
- [2] J. Kranz and D. Herzog, "Design guidelines for laser additive manufacturing of lightweight structures in TiAl6V4," *Journal of Laser Applications*, vol. 27, no. S1, p. 16, 2015.
- [3] D. A. Türk, L. Triebe and M. Meboldt, "Combining Additive Manufacturing with Advanced Composites for Highly Integrated Robotic Structures," *Procedia CIRP*, vol. 50, pp. 402-407, 2016.
- [4] EOS GmbH, "Basic Design Rules for Additive Manufacturing," [Online]. Available: https://cdn1.scrvt.com/eos/public/ab4f0542d66453fc/5f889ab7e3f72bd3d44b22205ba8b68b/EOS-Basic-Design-Rules_Additive-Manufacturing_EN.pdf. [Accessed 16 03 2018].