The University of Manchester

Digital Manufacturing Laboratory at the University of Manchester is recruiting PhD candidates (multiple positions are available). Qualified candidates will be provided with full scholarship (3.5-4 years) including full tuition fee (International Student: £24,000 / year; UK Student: £4,600 / year) and life stipend (£15,000 / year).

Supervisor:

Prof. Charlie C. L. Wang currently holds a Chair of Smart Manufacturing with the University of Manchester. Prior to this, he was a Chair of Advanced Manufacturing at Delft University of Technology and a Professor of Mechanical and Automation Engineering at the Chinese University of Hong Kong. He also worked as a visiting professor at University of Southern California during sabbatical leave in 2011. He received his B.Eng. degree (1998) in mechatronics engineering from Huazhong University of Science and Technology and his Ph.D. degree (2002) in mechanical engineering from Hong Kong University of Science and Technology (HKUST). Prof. Wang received several awards from professional societies including the ASME CIE Excellence in Research Award (2016), the ASME CIE Young Engineer Award (2009), seven Best Paper Awards and four project-oriented innovative technology awards. He was elected to be a Fellow of American Society of Mechanical Engineers (ASME) in 2013, and is currently the Chair of Solid Modeling Association (SMA). https://mewangcl.github.io/

University & Digital Manufacturing Group:

The University of Manchester traces its roots to the formation of the Mechanics' Institute (later UMIST) in 1824, and its heritage is linked to Manchester's pride in being the world's first industrial city. As of 2021, the University of Manchester has been recognised as the 27th best university in the world by QS. The university was ranked 6th nationally. The University of Manchester was ranked 36th in the Academic Ranking of World Universities 2020. The digital manufacturing laboratory was established by Prof. Wang in 2020, which consists of 7 PhD students and 2 Postdocs now. Major research interests of the group include Digital Manufacturing, Computational Design, Additive Manufacturing, Soft Robotics, Mass Personalization, and Geometric Computing.

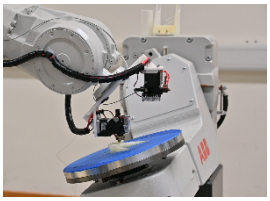
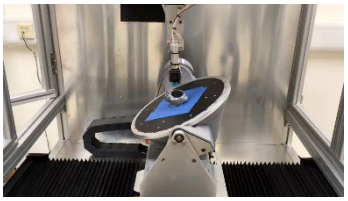
Recent Publications:

1. Zishun Liu, Xingjian Han, Yuchen Zhang, Xiangjia Chen, Yukun Lai, Eugeni L. Doubrovski, Emily Whiting, and Charlie C.L. Wang, "Knitting 4D garment with elasticity controlled for body motion", **ACM Transactions on Graphics (SIGGRAPH 2021)**, vol.40, no.4, article no.62 (16 pages), August 2021.
2. Rob B.N. Scharff, Guoxin Fang, Yingjun Tian, Jun Wu, Jo M.P. Geraedts, and Charlie C.L. Wang, "Sensing and reconstruction of 3D deformation on pneumatic soft robots", **IEEE/ASME Transactions on Mechatronics**, 2021.
3. Guoxin Fang, Christopher-Denny Matte, Rob B.N. Scharff, Tsz-Ho Kwok, and Charlie C.L. Wang, "Kinematics of soft robots by geometric computing", **IEEE Transactions on Robotics**, vol.36, no.4, pp.1272-1286, August 2020.
4. Guoxin Fang, Tianyu Zhang, Sikai Zhong, Xiangjia Chen, Zichun Zhong, and Charlie C.L. Wang, "Reinforced FDM: Multi-axis filament alignment with controlled anisotropic strength", **ACM Transactions on Graphics (SIGGRAPH Asia 2020)**, vol.39, no.6, article no.204 (15 pages), November 2020.
5. Weiming Wang, Dirk Munro, Charlie C.L. Wang, Fred van Keulen, and Jun Wu, "Space-time topology optimization for additive manufacturing: concurrent optimization of structural layout and fabrication sequence", **Structural and Multidisciplinary Optimization**, vol.61, pp.1-18, January 2020. (Winner of ISSMO/Springer Prize)
6. Tim Kuipers, Jun Wu, and Charlie C.L. Wang, "CrossFill: Foam structure with graded density for continuous material extrusion", **Computer-Aided Design**, vol.114, pp.37-50, September 2019. (Best Paper Award of SPM 2019 - 2nd Place)

Requirements: Graduated from Mechanical Engineering / Electrical Engineering / Computer Science or any other relevant programmes with excellent GPA. Outstanding candidate with only Bachelor degree will also be considered. Applicants need have background knowledge in computational design, digital manufacturing or robotics; Good skills in mathematics and programming (C++ and geometric computing) are preferred.

Topics:

1. Geometric optimization for 3D printing
2. Robot-assisted additive manufacturing
3. Process planning for hybrid machining

Application Method:

Sending your CV and transcript to the email of Prof. Wang: charlie.c.l.wang@gmail.com