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科研与工作经历

2022 - ...

研究助理

德国慕尼黑工业大学 (TUM) 计算机、信息与技术学院 (CIT) 机器人学、人工智能与实时系统研究组

科学研究员

德国慕尼黑工业大学 (TUM) 慕尼黑机器人与机器智能研究所 (MIRMI)

项目助理

德国巴伐利亚州经济事务、区域发展与能源部 (StMWi) 灯塔计划 KI.FABRIK (AI.Factory), (资助编号: DIKo249)

项目助理

德国联邦教育与研究部 (BMBF) “Souverän. Digital. Vernetzt.” 计划下的联合项目 6G-life, (资助编号: 16KISKoo2)

2021 – 2022

项目助理

德国克劳斯塔尔工业大学、机械工程学院生物力学项目重点实验室中的电动节能自行车测功仪的设计与测试

2019 – 2020

助理机械工程师

大众汽车自动变速器(天津)有限公司噪声、振动与粗糙度(NVH)小组 - 全职

2016 – 2017

机械工程师实习生

德国 Kisters-Stiftung gemeinnützige GmbH 工业制造小组 - 兼职

教育经历

2022 - ...

博士, 慕尼黑工业大学 (德国) - 计算机科学 - 机器人学

导师: Prof. Dr.-Ing Alois Knoll

论文标题: 多机器人协作智能: 几乎确定渐近最优任务和运动规划的新范式.

2020 – 2022

硕士, 克劳斯塔尔工业大学 (德国) - 机械与自动化技术

导师: Prof. Dr.-Ing Christian Rembe

论文标题: 在可见光频率范围 (约 $>2.5 \text{ GHz}$) 内超过光电探测器带宽的频率下进行千兆赫范围内的振动测量.

2016 – 2020

学士, 莱茵-瓦尔应用科技大学 (德国) - 机械工程

导师: Prof. Dr.-Ing Niels Ostergaard

论文标题: 经典滑动杆问题的综合解析和数值逆动力学方法.

精选研究出版物 (* 共同作者)

期刊论文

- 1 L. Zhang, K. Cai, Y. Zhang, Z. Bing, C. Wang, F. Wu, S. Haddadin, and A. Knoll, “Estimated informed anytime search for sampling-based planning via adaptive sampler,” *IEEE Transactions on Automation Science and Engineering (T-ASE)*, vol. 22, pp. 18 580–18 593, 2025, [JCR Q1, IF: 6.4]. doi: 10.1109/TASE.2025.3590084.

- 2 K. Cai*, **L. Zhang***, X. Su, K. Chen, C. Wang, S. Haddadin, A. Knoll, A. Ajoudani, and L. Figueiredo, "Just in time informed trees: Manipulability-aware asymptotically optimized motion planning," *IEEE/ASME Transactions on Mechatronics (T-Mech)*, pp. 1–12, 2025, [JCR Q1, IF: 7.3]. DOI: 10.1109/TMECH.2025.3570573.
- 3 **L. Zhang**, K. Cai, Z. Bing, C. Wang, and A. Knoll, "Genetic informed trees (GIT*): Path planning via reinforced genetic programming heuristics," *Biomimetic Intelligence and Robotics*, vol. 5, no. 3, p. 100 237, 2025, [JCR Q1, IF: 5.5], ISSN: 2667-3797. DOI: 10.1016/j.birob.2025.100237.
- 4 **L. Zhang**, K. Cai, Z. Sun, Z. Bing, C. Wang, L. Figueiredo, S. Haddadin, and A. Knoll, "Motion planning for robotics: A review for sampling-based planners," *Biomimetic Intelligence and Robotics*, vol. 5, no. 1, p. 100 207, 2025, [JCR Q1, IF: 5.5], ISSN: 2667-3797. DOI: 10.1016/j.birob.2024.100207.
- 5 **L. Zhang**, Y. Ling, Z. Bing, F. Wu, S. Haddadin, and A. Knoll, "Tree-based grafting approach for bidirectional motion planning with local subsets optimization," *IEEE Robotics and Automation Letters (RA-L)*, vol. 10, no. 6, pp. 5815–5822, 2025, [JCR Q1, IF: 5.3]. DOI: 10.1109/LRA.2025.3562369.
- 6 **L. Zhang**, S. Wang, K. Cai, Z. Bing, F. Wu, C. Wang, S. Haddadin, and A. Knoll, "APT*: Asymptotically optimal motion planning via adaptively prolated elliptical r-nearest neighbors," *IEEE Robotics and Automation Letters (RA-L)*, vol. 10, no. 10, pp. 10 242–10 249, 2025, [JCR Q1, IF: 5.3]. DOI: 10.1109/LRA.2025.3598616.

会议论文

- 1 **L. Zhang**, K. Chen, K. Cai, Y. Zhang, Y. Dang, Y. Wu, Z. Bing, F. Wu, S. Haddadin, and A. Knoll, "Direction informed trees (DIT*): Optimal path planning via direction filter and direction cost heuristic," in *2025 IEEE International Conference on Robotics and Automation (ICRA)*, 2025, pp. 1766–1772. DOI: 10.1109/ICRA55743.2025.11127725.
- 2 **L. Zhang**, Z. Li, K. Cai, Z. Bing, and A. Knoll, "Language-exclusive mobile manipulation for efficient object search in indoor environments," in *2025 IEEE International Conference on Cyborg and Bionic Systems (CBS) Accepted*, 2025.
- 3 **L. Zhang**, S. Wang, K. Cai, Z. Bing, and A. Knoll, "Multi-sets trees (MST*): Accelerated asymptotically optimal motion planning optimization informed by multiple domain subsets," in *2025 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) Accepted*, 2025.
- 4 **L. Zhang**, Y. Wei, K. Cai, Z. Bing, Y. Meng, F. Wu, S. Haddadin, and A. Knoll, "CIT*: Context-based biased batch-sampling for almost-surely asymptotically optimal motion planning," in *2025 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) Accepted*, 2025.
- 5 **L. Zhang**, Q. Zong, Y. Zhang, Z. Bing, and A. Knoll, "Deep fuzzy optimization for batch-size and nearest neighbors in optimal robot motion planning," in *2025 IEEE International Conference on Cyborg and Bionic Systems (CBS) Accepted*, 2025.
- 6 M. Schewe*, **L. Zhang***, and C. Rembe, "Signal processing scheme for broadband heterodyne gigahertz interferometry with a broadband and a second low-noise photodetector with limited bandwidth," in *Journal of Physics: Conference Series*, vol. 2698, 2024, p. 012 012. DOI: 10.1088/1742-6596/2698/1/012012.
- 7 **L. Zhang**, Z. Bing, K. Chen, L. Chen, K. Cai, Y. Zhang, F. Wu, P. Krumbholz, Z. Yuan, S. Haddadin, and A. Knoll, "Flexible informed trees (FIT*): Adaptive batch-size approach in informed sampling-based path planning," in *2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2024, pp. 3146–3152. DOI: 10.1109/IROS58592.2024.10802466.
- 8 **L. Zhang**, Z. Bing, Y. Zhang, K. Cai, L. Chen, F. Wu, S. Haddadin, and A. Knoll, "Elliptical k-nearest neighbors - path optimization via coulomb's law and invalid vertices in c-space obstacles," in *2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2024, pp. 12 032–12 039. DOI: 10.1109/IROS58592.2024.10802280.

技能

- 语言 能熟练阅读、书写和口语英语、中文（母语）和德语。
- 编程开发 C++, C, Python, MATLAB/Simulink, JSON, XML, URDF, XACRO, LATEX, Arduino ...
- 工程软件 Solidworks, AutoCAD, Catia, ANSYS, PLC (Ladder/Functional block diagrams) ...
- 机器人开发 ROS1/ROS2, Git, Linux, DOCKER, Moveit!, CoppeliaSim, Gazebo, Mujoco, OMPL ...
- 杂项 学术研究、教学、培训、咨询、LATEX 排版、出版。

其他经验 / 各类经验

奖项和成就

- 2025 编辑精选论文 (**Biomimetic Intelligence and Robotics**) [JCR Q1, IF: 5.5],
2025 年第 1 期机器人运动规划综述中精选的 Top 论文。
- 2023 中国国家留学基金委 (CSC)
中华人民共和国教育部公派留学全额奖学金。
- 2022 应用计量学系奖
克劳斯塔尔工业大学电气信息技术研究所，所长 Prof. Dr.-Ing Christian Rembe 教授（德国大学讲师协会委员会）的推荐。
系优秀学生表现奖
克劳斯塔尔工业大学电气信息技术研究所 Dr.-Ing Marvin Schewe 博士（美国 NIST 博士后研究员）的推荐。
- 2019 噪声、振动和声振粗糙度 (NVH) 部门奖
大众自动变速器 (天津) 有限公司 Vollrath Andreas 先生（质量保证部门主管）和 Stefanie Wangemann 女士（组织和教育部门主管）的推荐。

获奖认证

- 2022 德语认证 C1/z (最高级)
由克劳斯塔尔工业大学共同欧洲级别的 Jörg Schröder 博士（语言中心副主任）颁发。
- 2010 全国西洋管乐类(小号)青少年组一等奖
由中国湖北省武汉市，中国音乐协会（西洋乐器）颁发。
- 2009 小号专业九级认证
由中国湖北省武汉市，武汉音乐学院协会颁发。

机器人与自动化协会领域服务

- 主席:
- ▷ 2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS),
阿联酋阿布扎比国家展览中心, 机器人运动规划 IV 研讨会。
 - ▷ 2025 IEEE International Conference on Cyborg and Bionic Systems (CBS),
中国北京世纪金源会展中心, 运动规划与控制 T2 研讨会。
- 审稿人:
- IEEE Transactions on Robotics (T-RO),
 - IEEE Transactions on Automation Science and Engineering (T-ASE),
 - IEEE/ASME Transactions on Mechatronics (T-Mech),
 - IEEE Robotics and Automation Letters (RA-L),
 - IEEE Transactions on Neural Networks and Learning Systems (TNNLS),
 - IEEE International Conference on Robotics and Automation (ICRA),
 - IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).