

人体髌膝关节植入物的可靠性估计

【项目描述】：随着人体植入物的广泛应用，其可靠性评价已成为当前亟待解决的热点问题。本项目致力于构建描述人体髌关节、膝关节等植入物退化的统计学模型，涵盖了实验设计、数据采集、运筹学模型开发、计算机编程等。我们的目标是通过这些研究，提高人体植入物的可靠性预测的准确率，为人体关节植入物的广泛应用及行业标准的制定奠定基础。

【职位概述】：我们正在寻求一位基础扎实、自我驱动，对医工结合项目感兴趣，且愿意开展研究工作的科研助理。理想的候选人应具有统计学、运筹学等的相关背景，并热衷于医工交叉领域工作。候选人将在文献调研、数据采集处理和数学建模方面开展工作，通过与项目负责人及团队成员的密切合作，在知名期刊上发表相关学术论文。通过聚焦性科研延展项目 (FREE)，候选人将有机会获取开展研究工作所需的专业技能和实操技能，从而增加申请博士或硕士研究生项目获批的可能性以及获得工业界长期工作的机会；合作导师可推荐优秀的科研助理到美国、中国香港及中国大陆知名高校攻读博士学位。

【职位要求】：

- 工业工程、运筹学、统计学、应用数学、管理学等相关专业的学士及以上学历
- 能够独立推导统计学公式
- 数学建模的经验
- 熟练使用以下语言中的至少 1 种 (MATLAB、Python、R)。

Reliability estimation of human knee and hip implants

Project Description: In recent years, with the widespread application of human implants, their reliability estimation has become a frontier problem that needs to be solved urgently. This project is dedicated to developing statistical models to characterize the degradation of implants (e.g. human hip joints and knee joints). The tasks include experimental design, data collection, operations research model development, computer programming, etc. Our goal is to improve the accuracy of reliability prediction of human implants through these studies and lay the foundation for the widespread application of human joint implants and industry standards.

Job Description: We are looking for a scientific research assistant with a solid academic foundation, self-motivation, interest in medical engineering projects, and willingness to carry out research work. The ideal candidate should have a relevant background in statistics, operations research, etc., and be keen on working in the field of Medicine & Engineering Combination. Candidates will work on literature review, data collection, data processing and mathematical modeling. Candidates will collaborate with the PI and other team members on publishing academic papers in high-quality journals. Through the Focused Research Extension Program (FREE), candidates will have the opportunity to acquire the professional and practical skills required to carry out research work, thereby increasing the likelihood of being admitted to a doctoral or master's degree program and the chance of obtaining a long-term job in industry. The PI can recommend outstanding research assistants to study for a doctoral degree at well-known universities in the United States, Hong Kong and Mainland China.

This position commences in or after early 2024, with individuals anticipated to initiate their responsibilities no later than Spring 2024. The term of employment spans two years, and the contract is structured for annual renewal.

Qualifications:

- Bachelor's degree or above in industrial engineering, operations research, statistics, applied mathematics, management and other related majors
- Able to independently derive probability and statistical formulas.
- Experience in mathematical modeling
- Proficient in using at least one of the following languages (MATLAB, Python, R).

For questions regarding this position, please contact Dr. Changxi Wang, at changxi.wang@scu.edu.cn.