

南通大学

专业技术五级及以下岗位申报表

申报人姓名：徐一鸣

申报岗位等级：专业技术五级

所在一级学科：控制科学

现聘岗位等级：专业技术七级

填表时间：2019年5月4日

填表说明

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2. 本表第一至第五项内容由本人填写，并附证明材料。
3. 表中各栏目要求认真填写，具体内容真实、详尽，全面科学地反映本人水平、能力和实绩；业绩成果均为本人任现职以来新增业绩（含任现职当年业绩，但不得重复使用），未达到申报条件的业绩成果无需填写，数据截止至 2018 年 12 月 31 日。
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6. 所在一级学科参照 2018 年 4 月国务院学位委员会、教育部印发的《学位授予和人才培养学科目录》填写。

申报人承诺：

本表所填信息属实，所有申报材料均为任现专业技术职务以来的新增业绩。本人对本表所填写内容的真实性负全部责任。

申报人签名：徐一峰

2019 年 5 月 5 日

一、基本情况

姓名	徐一鸣	性别	男	民族	汉族	籍贯	南通
出生年月	1981年5月	政治面貌	中共党员		来校工作年月	2011年8月	
健康状况	良好	联系电话	18751310789		邮箱	yimingx@ntu.edu.cn	
所在一级学科	控制科学				申报专业技术岗位等级	五级	
现聘专业技术职务及聘任时间 (转评专业技术职务分行填写)			副教授 2014年7月				
是否遵纪守法, 具有良好的品行和职业道德, 具有良好的学术声誉、学术道德和合作精神						是	

二、年度考核情况

任现职以来, 各年度综合考核是否均为合格及以上			是
近三年 年度考核情况	2016年	2017年	2018年
	优秀 ✓	合格 ✓	合格 ✓

三、教学工作情况

1.任现职以来, 年度教学质量考核优秀次数(注明年份)		2次 2014、2016	
2.近三年教学质量考核情况	2016年	2017年	2018年
	优秀	良好	良好

四、任现职以来业绩

1. 教师荣誉(申报条件附表条款1)

获得时间	称号名称	授予部门
2015	南通大学优秀共产党员	南通大学
2016	南通大学优秀教学质量奖	南通大学

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2.人才称号（申报条件附表条款2）

获得时间	称号名称	授予部门
2016	江苏省双创博士-科技副总 ✓	江苏省科学技术厅

3.团队建设（申报条件附表条款3）

获得时间	团队名称	本人角色	批准部门
2018	江苏省“六大人才”高峰团队-微电网智能调度与控制关键技术研发与应用（顾菊平）	核心成员	江苏省委组织部、江苏省人力资源和社会保障厅
2018	江苏省“青蓝工程”优秀教学团队-电气工程及其自动化专业教学团队（华亮）	核心成员	江苏省教育厅

4.教学平台、公共服务平台负责人（申报条件附表条款4）

获得时间	平台名称	本人角色	批准部门

5.专业建设负责人（申报条件附表条款5）

获得时间	专业建设名称	本人角色	批准部门

6.学科、科研平台负责人（申报条件附表条款6）

获得时间	平台名称	本人角色	批准部门

7.教学成果奖（申报条件附表条款 7）

获得时间	奖项级别	奖项等级	本人排名	评奖部门
2017	江苏省教学成果奖一等奖	省一等奖	9	江苏省教育厅
2018	中国交通教育学会优秀教学成果奖	市厅级一等奖	2	中国交通教育学会
2017	南通大学教学成果奖一等奖	校一等奖	1	南通大学

8.自然科研成果奖（申报条件附表条款 8）

获得时间	奖项名称	奖项等级	本人排名	评奖部门
2016	中国有色金属工业科学技术奖二等奖	省部级二等奖	4 ✓	中国有色金属工业协会
2017	南通市第十届自然科学优秀学术论文奖	市厅级二等奖	2 ✓	南通市人民政府

9.专利奖（申报条件附表条款 9）

获得时间	奖项名称	奖项等级	本人排名	评奖部门

10.指导学生（申报条件附表条款 10）

获得时间	奖项名称	奖项等级	本人排名	评奖部门

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11.科研项目（申报条件附表条款 11）

起止时间	项目名称	立项单位	项目级别	本人角色
2016.10-2018.09	南通市科技应用研究计划-多旋翼微型飞行器视觉跟踪协同机理及方法研究	南通市科技局	市厅级	主持人
2014.08-2016.12	江苏省高校自然科学研究面上项目-无人机小型多轴光电系统关键技术研究	江苏省教育厅	市厅级	主持人

12.教学项目（申报条件附表条款 12 内容）

起止时间	项目名称	立项单位	项目级别	本人角色
2018.05-2020.05	基于云课程的测控技术与仪器课程群教学改革与实践	江苏省教育科学研究院现代教育技术研究所	市厅级	主持人

13.论文、论著、专利类（申报条件附表条款 13）

论文题目	发表刊物（卷/期）	本人角色	期刊级别（或分区）
✓ Design and recognition of monocular visual artificial sign based on arc angle information coding[C]	2018 33rd Youth Academic Annual Conference of Chinese Association of Automation, pp. 722-727, May 18-12, Nanjing, China	第一	EI 会议 (EI: 20183105631757)
✓ 变厚度复合材料板低速冲击能量监测	振动与冲击, 2018, 37(10): 247-254.	通信作者	EI 期刊 (EI:20183705791829)

✓ Vehicle Recognition Method Based on Color Invariant SIFT Features		2018 37th Chinese Control Conference, pp. 9578-9583 July 25-27, Wuhan, China, 2018.	第一 ✓	EI 会议 (EI: 201846060547 73)
✓ An optimized Vibe target detection algorithm based on gray distribution and Minkowski distance.		2017 32nd Youth Academic Annual Conference of Chinese Association of Automation, pp. 66-71. June, 30, 2017, Hefei, China.	第一 ✓	EI 会议 (EI: 201732040241 95)
✓ 基于 N-LBP 纹理与色度信息的 CamShift 跟踪算法		计算机科学, 42(6): 313-316, 2015	第一 ✓	二级期刊
✓ An Image Stabilization Algorithm on Corner Detection and Feature Block Matching.		4th International Conference on Audio, Language and Image Processing, pp. 190-194, July 7-9, Shanghai, China, 2014	第一 ✓	EI 会议 (EI: 201507005180 41)
✓ 基于去均值归一化互相关方法的复合材料板低速冲击定位		传感技术学报, 29(12): 1810-1814, 2016.	通信作者	二级期刊
✓ 基于光纤传感网络的变截面复合材料低速冲击定位		传感技术学报, 27(12):1632-1636, 2014	通信作者	二级期刊
专著名称	出版社	字数 (本人撰写字数)	出版时间	折算论文篇数
发明专利授权名称 (转让情况)		本人角色	授权时间 (转让时间)	折算论文篇数
基于 DSP 的相关跟踪方法及专用装置		第一 ✓	2014.09.10	14

自然科学论文 8 篇（其中中科院 JCR 三区及以上论文 0 篇；人文社科论文 0 篇；期刊级别按附表条件表述，如 SCI、EI、三区；CSSCI、SSCI、《高等学校文科学术文摘》转载等；ESI 学科排名前 1% 或学科潜力值超过 0.5% 的主要贡献者情况说明：_____）

获得时间	课程资源建设名称	本人角色	批准部门

颁布时间	制定标准名称	本人角色	标准颁布主体

聘任 副高（副高、中级）专业技术职务满 5 年，具备附表 1 中所列的第 8、7、 、 、 项条件，以及附表 6 中所列的第 7、8、13、 、 项条件。
7

六、学院意见

经评审， 同志拟聘为专业技术 级岗位。

电气工程学院岗位聘用工作小组组长签字：

年 月 日



经 江苏省高校教师
高级专业技术资格评审委员会于
2014年 7月24日评审， 徐一鸣
已具备副教授 资格。

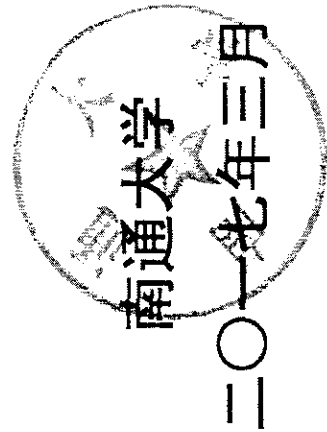
姓 名	<u>徐一鸣</u>
性 别	<u>男</u>
出生年月	<u>1981.05</u>
工作单位	<u>南通大学</u>
编 号	<u>14011171</u>



荣誉证书

徐一鸣、顾菊平、茅予践、茅靖峰、堵俊、吴晓、张新松、周根荣、张蔚、吴晓新同志的面向国际工程教育专业认证的电气专业人才培养模式改革成果获得2017年南通大学教学成果奖一等奖。

特发此证。

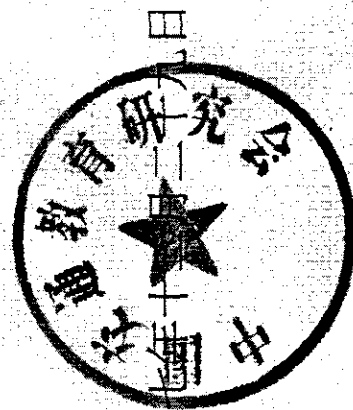


证 书

顾菊平、徐一鸣、堵俊、华亮、吴晓、茅靖峰 同志：

参评成果《地方综合性大学交通电气类集创新人才培养的研究与实践》，在
2015-2017 年度交通教育科学优秀成果评选中获 一等奖。特发此证，以资鼓励。

证书编号：20171046



中国有色金属工业科学技术奖

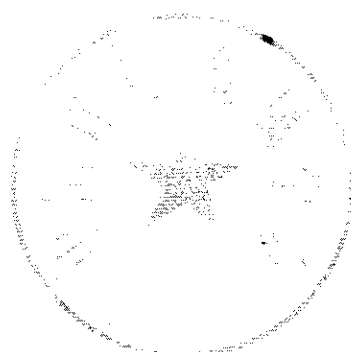
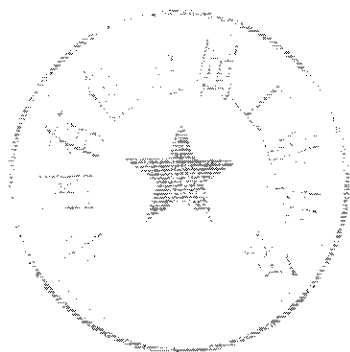
证书

为表彰中国有色金属工业科学技术奖
获得者，特颁发此证书。

项目名称：高效节能风机用高性能铝合金
叶轮成套制造技术及装备

奖励等级：二等奖

获奖者：徐一鸣



2016 年 1 月 5 日

证书号：中色协科[2016]5-2015109-R04

集团网: 部门 海安 如皋 如东 海门 启东 通州 崇川 港闸 开发区

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南通市人民政府

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2017-12-19 14:04

搜索

高级搜索

热词: 招商 人才引进 大数据 地铁 施教区

首页 市情 市政府 新闻 政务公开 服务 问政 数据发布

当前位置: 首页 > 政府文件 > 市政府文件

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分类: 科技、教育\教育 通知

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文号: 通政发〔2017〕67号

成文日期: 2017-12-19

发布日期: 2017-12-19

有效性:

名称: 市政府关于公布南通市第十届自然科学优秀学术论文的通知

市政府关于公布南通市第十届自然科学优秀学术论文的通知

来源: 南通市人民政府办公室 发布时间: 2017-12-19 字体: [大 中 小]

各县(市)、区人民政府,市经济技术开发区管委会,苏通科技产业园区管委会,通州湾示范区管委会,市各有关部门和单位:

近年来,全市上下深入贯彻习近平总书记关于科技创新工作的重要指示精神,紧紧围绕“科技兴市”战略,注重发挥科技人员的积极性和创造性,鼓励科技人员进行理论创新和实践创新,取得了较好成绩。2015~2016年度,全市科技人员结合南通实际,撰写并在省级以上刊物发表了一大批自然科学和工程技术科学领域的学术论文,为推进科技创新工程作出了积极贡献。经南通市自然科学学术论文评审委员会认真评审,并向社会公示,共评出第十届自然科学优秀学术论文120篇,现予公布。

希望各地、各部门、各单位和全市广大科技工作者深刻认识实现创新驱动的时代责任,奋力投身科技创新创业,为建设“强富美高”新南通贡献智慧和力量。

附件: 南通市第十届自然科学优秀学术论文获奖名单

南通市人民政府

2017年12月19日

附件

南通市第十届自然科学优秀学术论文获奖名单(共120篇)

一等奖(共12篇)

1、Dispatching strategies for coordinating environmental awareness and risk perception in wind power integrated system

金晶亮(南通大学)、周德群、周 鹏

2、Properties of Fluoride-Doped β -PbO₂ Electrodes and their Electrocatalytic Activities in Degradation of Acid Orange II

乔启成(南通科技职业学院)、王立章、石 健

3、A hierarchical-coevolutionary-MapReduce-based knowledge reduction algorithm with robust ensemble Pareto equilibrium

丁卫平(南通大学)、王杰华、王建东

4、基于自适应强度数矩阵直方图均衡化的彩色医学图像增强

顾菊平(南通大学)、华 亮、吴 晓

5、Modification of wool by air plasma and enzymes as a cleaner and environmentally friendly process (用清洁化环境友好的空气等离子和生物酶对羊毛进行改性)

张瑞萍(南通大学)

6、啮合算法及结构参数对谐波传动的影响

罗 霁 (南通理工学院)、沙 春

7、Identification of genetic differentiation between waxy and common maize by SNP genotyping

郝德荣 (江苏沿江地区农业科学研究所)、张振良、程玉静

8、CXCL13 drives spinal astrocyte activation and neuropathic pain via CXCR5

姜保春 (南通大学)、曹德利、张 欣

9、Population-representative Incidence of Acute-On-Chronic Liver Failure:A Prospective Cross-Sectional Study

秦 刚 (南通市第三人民医院)、邵建国、朱永昌

10、Body Image Disturbances Have Impact on the Sexual Problems in Chinese Systemic Lupus Erythematosus Patients (身体形象障碍对中国系统性红斑狼疮患者性问题的影响)

沈碧玉 (南通市第一人民医院)

11、Transplantation of RADA16-BDNF peptide scaffold with human umbilical cord mesenchymal stem cells forced with CXCR4 and activated astrocytes for repair of traumatic brain injury

施 炜 (南通大学附属医院)、徐希德

12、Long-term survival trends of gastric cancer patients from 1972 to 2011 in Qidong

陈永胜 (启东市人民医院)、陈建国、朱 健

二等奖 (共24篇)

1、不同处理方式对大豆秸秆发酵品质和营养成分的影响

顾拥建 (江苏沿江地区农业科学研究所)、占今舜、沙文锋

2、地塞米松对人肝癌细胞系SMMC-7721凋亡的影响

沙向红 (南通师范高等专科学校)、臧巧巧、谭湘陵

3、Recursion-Transform method to a non-regular $m \times n$ cobweb with an arbitrary longitude

谭志中 (南通大学)

4、Optimizing degradation of Reactive Yellow 176 by dielectric barrier discharge plasma combined with TiO₂ nano-particles prepared using response surface methodology

沈拥军 (南通大学)、韩 硕、徐棋辉

5、Application of a mercapto- terminated binuclear Cu (II) complex Modified Au electrode to improve the sensitivity and selectivity for Dopamine detection

姜国民 (南通大学)、顾学芳、江国庆

6、纳米CeO₂及甲醇改性有机硅烷钝化膜的耐蚀性

顾剑锋 (南通职业大学)、肖 轶、周代义

7、深厚冲积层钢筋混凝土外层井壁结构模糊随机有限元可靠性及灵敏度分析

姚亚锋 (南通职业大学)

8、基于四元数不变矩的振动谱彩色图像识别的机械故障诊断

华 亮 (南通大学)、羌予践、顾菊平

9、基于去均值归一化互相关方法的复合材料板低速冲击定位

陆 观 (南通大学)、徐一鸣、邱自学

10、基于AMI的汽车仪表座熔接痕缺陷改善研究

顾 海 (南通理工学院)、孙建华、袁国定

11、Computerized design, generation and simulation of meshing and contact of hyperboloidal-type normal circular-arc gears

陈厚军 (南通大学)、张小萍、蔡 雄

12、后张无粘结混合装配式框架节点抗震性能试验研究

张 晨 (南通大学)、周宇凌、蔡小宁

13、南通民间虎头鞋手工艺的传承与发展研究

刘春辉 (江苏工程职业技术学院)

14、乳熟期玉米糊化热力学性质的分析

An Image Stabilization Algorithm on Corner Detection and Feature Block Matching

Xu Yanning, Gu Jiping, Zhu Hairong, Chen Feng

School of Electrical Engineering, Nantong University
Nantong, China
(xumingx, gujp, zhuhr, chen.f)@ntu.edu.cn

Lu Guan*

School of Mechanical Engineering, Nantong University
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Abstract—Moving objects may cause local motion interference and have negative effects for the performance of digital image stabilization. The paper presents a novel method based on corner detection and feature block matching with Hausdorff distance. SUSAN operator is used for corner extraction in large scale feature blocks of uniform distribution. The similarity of the two corner sets of feature blocks between two frames is calculated by introducing weighted corner response function into partial mean Hausdorff distance, and the local motion vectors can be obtained. The final effective motion vectors are determined by checking consistency. The experimental results show that the proposed algorithm can stabilize image sequences with heavy local motion interference, and the average PSNR increases 11.03 dB after stabilization.

Keywords—digital image stabilization; corner detection; hausdorff distance; local motion interference

I. INTRODUCTION

The visual quality of the output image sequences of camera systems for moving platforms or field surveillance systems are often degraded by unwanted camera shakes [1, 2]. In order to improve the system performance, motion compensation is used to eliminate the impact and stabilize the image sequences. Motion compensation system can be divided into mechanical image stabilization (MIS), optical image stabilization (OIS) and digital image stabilization (DIS). DIS uses digital image processing techniques to eliminate the image dithering and does not require additional mechanical or optical devices, hence has the advantages of low power consumption and small volume. Therefore, DIS has been an important trend for the development of modern image stabilization technology [3].

At present, digital image stabilization algorithms mainly include projection algorithm (PA) [4], block matching algorithm (BMA) [5], polar coordinate transform algorithm (PCTA) [6], feature tracking algorithm (FTA) [7], etc. FTA has a good stability and performs well both under translational motion and rotational motion. Most FTAs are based on feature block matching algorithm which has a premise of block motion consistency [8]. When feature block contains moving targets, the premise may be invalid and causes wrong local motion vectors, which will bring error into global motion vector estimation. In other words, moving objects in digital images may cause interference to image stabilization. However, in most cases, moving objects are quite common such as in traffic monitoring system.

Aiming at this problem, an image stabilization method is proposed in this paper. By creating corner set in distributed feature blocks and calculating Hausdorff distance (HD) between these sets, reliable local motion vectors can be obtained to estimate the final global motion vector. The algorithm creates corner sets from large scale feature blocks in uniform distribution by using SUSAN operator, and modifies partial mean HD (PMHD) by introducing the difference of corner response function (CRF) between two frames into PMHD formula. The adjusted formula weakens the influence of unwanted corners from moving objects in feature blocks and improves the corner sets matching accuracy under partial occlusion. The experimental results show that the proposed image stabilization algorithm performs well under heavy local motion influence.

II. PRINCIPLE OF PROPOSED IMAGE STABILIZATION ALGORITHM

A. Principle of Digital Image Stabilization

At present, the digital image stabilization system is mainly composed of three parts: motion estimation, motion smoothness and motion compensation. When an image sequence is degraded by random camera shakes, firstly, the motion estimation estimates the global motion parameters of the adjacent two frames, then the motion smoothness removes the vectors of moving targets and obtains a global motion vector, the motion compensation gives a corresponding motion compensation vector, and a stabilized output image sequence is given.

B. Stabilization Method on Corner Detection and Feature Block Matching

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The proposed algorithm is based on the thought of feature block matching, but uses corner set matching algorithm in large scale feature blocks to replace conventional block matching

The Low Velocity Impact Localization Based on Optic Fiber Sensing Network for Varied Cross-Section Composites^{*}

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Abstract In order to localize the impact injuries inside complex composite structure, a low velocity impact monitoring system for varied cross-section composite structure based on fiber Bragg grating (FBG) sensor network was established. The paper used FBG sensors to measure the strain field of the structure, collected and analyzed impact response signals of varied cross-section composite laminated plate under constant temperature. The spectrum signatures of impact signals were extracted by empirical mode decomposition (EMD) method and modeled by autoregressive modeling method. The Mahalanobis distance between template signals and signals to be measured was calculated to localize the impact position. The experimental results show that the proposed method is feasible for impact localization of varied cross-section composite structure and the maximum relative error is 4.23%.

Key words optic fiber grating sensor/low velocity impact localization/empirical mode decomposition/autoregressive model/varied cross-section composite

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基于光纤传感网络的变截面复合材料低速冲击定位^{*}

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摘 要 为了检测复杂复合材料结构的冲击内部损伤位置, 构造了基于光纤传感网络的变截面复合材料板低速冲击监测系统。采用可检测结构应变场的光纤光栅传感器, 在恒温下监测并分析了变截面复合材料板的冲击响应信号, 利用经验模态分解方法提取冲击信号频谱特征, 通过自回归模型将频谱特征建模, 最后利用样本信号与待测信号之间的马氏距离判定冲击信号位置。实验结果表明基于光纤光栅传感网络、经验模态分解和自回归模型的变截面复合材料板低速冲击定位方法可行且最大相对误差为 4.23%。

关键词 光纤光栅传感器; 低速冲击定位; 经验模态分解; 自回归模型; 变截面复合材料

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复合材料在各个领域的使用越来越广泛, 而复合材料结构的动态监测及维护也成为了国内外学者的研究重点^[1-3]。由于复合材料受低速冲击后易产生外表面不易察觉的结构内部损伤, 因此监测复合材料结构的动态信号十分重要。实时监测复杂结构

冲击位置能为结构损伤预警提供一定的依据并极大减少成本投入^[4-6]。

目前应用于结构动态监测的传感器种类很多, 光纤 Bragg 光栅 (FBG, Fiber Bragg Grating) 传感器以其体积小、质量轻、抗干扰、耐腐蚀、绝缘好、可分布

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基于 N-LBP 纹理与色度信息的 Camshift 跟踪算法

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... 2000 年 12 月 31 日 12 时止，共发生 10 起，死亡 10 人，重伤 1 人，轻伤 1 人，直接经济损失 100 万元。

摘要 基于视觉特征的运动目标跟踪算法容易受到光照条件和背景变化的影响,如何利用多种特征融合提高跟踪精度并降低复杂度是一个关键问题。提出了一种新的特征融合运动目标跟踪算法,该算法基于局部二值模式(Local Binary Pattern)纹理特征,引入无环非凸局部特征并考虑二值模式门控集,表明统一模式下的无环非纹理描述子构造的误差方面,并结合色度信息建立联合分类器,在Cam2.1算法框架内进行目标跟踪。实验证明,与传统的Cam2.1算法相比,该算法在保证跟踪精度并降低性能的同时,可以更好地利用非纹理特征带来的非均匀光照变化带来的影响,具有更好的跟踪效果。

美國國 1. 1950年以前，於無二值理上，其祖知全，其分時祖直三則

中图法分类号: TP 311 文献标识码: A DOI: 10.1109/JSS.2007.1328.2729.2730

Camshift Tracking Algorithm Based on N-LBP Texture and Hue Information

[illegible][illegible]

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Abstract When feature for searching objects are not effective, a more appropriate function form and shape will be constructed. Constructing target model with multiple features is a key to construct a more accurate tracking performance. A novel feature for searching target tracking algorithm was proposed in this paper. Identification self-adaptive local standard deviation is introduced to the threshold for local binary pattern feature. A new strategy was constructed to compare NLP texture descriptor in different pattern and time information, and the moving target tracking is conducted within Chinese algorithm framework. The tracking experiments with steady interference show that the proposed algorithm can overcome the changes of illumination and has more robustness and stability with good real-time performance compared with traditional algorithms.

Keywords: Church attendance; church adaptation; conversion; tracking; church history; patterns of religious change; social history.

随着计算机技术的发展,基于数字图像处理的目标运动跟踪技术越来越得到人们的重视,并且广泛应用于视频监控、人脸识别、智能交通以及军事领域^[1]。根据所取特征以及特征维度的不同,可以将运动目标跟踪算法分为基于颜色、基于几何特征、基于轮廓等基于像素点类。对于运动目标跟踪算法来说,提取合适的特征无疑是实现准确跟踪的关键,不同的特征有颜色、亮度、角点、边缘以及运动信息等等。由于颜色信息对目标的姿态、旋转及尺度变化具有不变性,同时具有较好的鲁棒性及实时性强等优点,基于颜色的目标跟踪算法得到了大量关注,并产生了许多优秀成果,如仿射移(Motion Shift)算法就是其中的典型代表。Comaniciu等通过构建空间颜色直方图来进行搜索,并采用 Chamfer-L₁ 距离来度量颜色直方图的相似度。文献^[2]提出了一种基于自适应的变

称为“margin”算法,该算法对动态的权重分布,自适应调整跟踪窗口的大小,从而更好地适应目标尺度的变化。此外,该算法还计算航迹,从而感知姿态、速度变化不敏感,具有较好的跟踪性能,但是当目标与背景颜色接近或者遇到遮挡时,跟踪效果不理想。

为了提高跟踪算法的鲁棒性,有必要结合多种特性来更好地构建目标模型。较理想的方式是增加域内的亮度变化描述方法,因为像点颜色没有必然联系,可以视为颜色特征缺失时的有效补充。将边缘特征与颜色信息相结合来描述运动目标,可以在一定程度上改善基于颜色的跟踪算法在目标与背景颜色相近以及无跟踪目标变化时的跟踪性能。文献[3]提出的局部二值模式模型(Local Binary Pattern, LBP)对鲁棒性强,但边缘特征与颜色结合建模缺乏必要的数学描述。近年来,研究者开始采

[illegible]

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The Low Velocity Impact Localization Based on Mean-Residual Normalized Cross-Correlation for Composite Plate

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Abstract: In order to localize the low velocity impacts (LVI) for composite structure without prior information, an impact localization method based on mean residual normalized cross correlation was proposed. The paper adopted non-normalized cross correlation method to normalize all impact sample signals and undetermined signals firstly. After that, the complex cross correlation values were calculated and the localization reference area was determined. Finally, the impact location was estimated by using cross correlation results between sample signals and undetermined signals. The experimental results show that the proposed method can evaluate the LVI positions for composite plate accurately, the maximal error is 34.76 mm and the standard error is 11.07 mm.

Key words: optic fiber Bragg grating; impact localization; mean residual normalized cross correlation; composite plate
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基于去均值归一化互相关方法的 复合材料板低速冲击定位

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摘要: 为了实现对未知冲击位置的复合材料结构低速度冲击定位, 提出了一种基于去均值归一化互相关方法的冲击定位方法。首先对已知冲击信号和待定位信号进行去均值归一化, 然后计算样本信号和待定位信号的互相关值, 从而确定定位参考区域, 最后对未知冲击信号和待定位信号间的互相关值, 计算冲击位置。实验结果表明该方法对复合材料板低速冲击定位, 其最大误差为 34.76 mm, 标准误差为 11.07 mm。

关键词: 光纤布拉格光栅; 冲击定位; 去均值归一化互相关方法; 复合材料板

中图分类号: TP212

文献标识码: A

文章编号: 1004-1699(2016)12-1-

近年来, 复合材料因其重量轻、强度高等优点广泛应用于航空航天结构部件制造领域^[1-3]。但是, 复合材料受意外因素影响, 易产生缺陷或损伤, 成分不均匀、老化等会在复合材料结构内部损伤复合材料的机械性能, 甚至发生灾难性破坏, 造成严重后果^[4-6]。为了检测复合材料结构内部缺陷, 研究人员提出了多种检测技术方法, 如: 超声检测^[7-9]、红外检测^[10]、射线检测^[11]、机械波^[12]等。

其中, 机械波法是应用一种弹性体结构进行应力传播, 当受到冲击时, 应力向四周扩散, 通过传感器, 采集到应力传播的传感器信号, 通过信号处理, 得到冲击位置, 有效避免冲击位置、冲击速度、冲击时间、冲击能量等。

另外, 冲击定位技术也可以利用冲击波在材料内部传播路径存在差异, 通过不同传感器采集冲击波, 通过信号处理得到冲击位置。有文献报道, 部分研究人员利用

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An optimized Vibe target detection algorithm based on gray distribution and Minkowski distance

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Abstract: Aiming at the ghost problem in Vibe algorithm, a fast optimization method based on gray histogram and Minkowski distance was proposed. Firstly, the pixels identified as foreground were labeled and the foreground blocks were connected by morphological processing. Then, the histogram of the current foreground block and the corresponding region of the specified frame were counted respectively. Finally, the similarity between the two gray-scale distributions was measured by Minkowski distance, and compared with the dynamic threshold to determine ghost area. In the target detection experiment, the algorithm could remove the ghosts in the Vibe, restrain the jitter disturbances in the background and reduce the false detection rate of the algorithm while preserving the fastness and real-time performance of the traditional Vibe algorithm, and the algorithm processing speed was between the original Vibe algorithm and mixed Gaussian method, the running time of each frame was 20ms. The experimental results show that this method is feasible for hardware system with real-time requirement.

Key Words: target detection, Visual Background extraction(Vibe), ghost, gray distribution, Minkowski distance

1 INTRODUCTION

Target detection is a method to extract the target of interest from a video sequence. It involves image processing, pattern recognition and other theories. It is widely used in intelligent transportation, aerospace, military and other fields. Target detection is one of the important prerequisites for the study of a series of problems, such as recognition and tracking^[1], but there are many interference factors in the actual environment, such as camera jitter, illumination mutation and wind disturbance, which will greatly affect the target detection accuracy.

Moving object detection can be divided into three types: optical flow method, frame difference method and background subtraction method^[2]. Background subtraction is the mainstream of moving object detection algorithm. The basic idea is to detect the motion region by the difference operation between the current image and the background image in the video sequence image^[3]. In 2011, Barnich Olivier et al. first proposed a Vibe background subtraction algorithm with the advantage of small computation and fast speed^[4]. Recently, several studies have been carried out around the Vibe algorithm. For example, Li et al. proposed a new Vibe detection method based on KGC graph cut theory^[5]. KGC region analysis under the constraint of target edge contour could extract the target exactly and completely,

and suppress the generation of target shadow. The above method was mainly around the shadow removal, inhibition of ghosting without match consideration. Wang Hui et al. proposed an adaptive Vibe target detection algorithm^[6]. It calculated the threshold of ghost shadow segmentation, to maintain a high, more stable detection rate by Otsu algorithm, but the foreground points needed to be judged again, so the computational complexity of the algorithm increased. Yu et al. proposed the EVibe algorithm for ghosting problem, and expanded the range of sample selection, and updated the neighborhood by interlaced update method^[7]. The method had higher accuracy and recognition rate, but the algorithm structure was more complex. Luan Yuan-yang proposed an improved Vibe method to determine the ghost region by logical operation with small amount of frames to be detected^[8]. The results were good, but because of twice use of Vibe algorithm, the real-time performance was affected.

This paper mainly studies the ghosting problem and achieves the effective judgment of ghosting in the case of minimizing the real-time performance of Vibe algorithm. The Euclidean distance formula is used in Vibe algorithm to determine the foreground target, the foreground points are constructed as foreground blocks by morphological processing, and the gray distribution of the foreground blocks and the corresponding regions of the specified frames are respectively statistically calculated. Then the Minkowski distance values are calculated, and compared with the dynamic threshold to determine the ghost region. Experiments show that the optimized algorithm can effectively suppress the ghost, and meet the real-time and accuracy of the system. Compared with the literature [8], this

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Vehicle Recognition Method Based on Color Invariant SIFT Features

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Abstract: Both aiming at the problems of the color information lack for SIFT features and the interference of color on vehicle identification, a vehicle identification method based on color invariant SIFT features is proposed. Firstly, the color edge regions of the images are calculated by using the RGB information, and the SIFT color invariant feature description vectors are generated in conjunction with the gray information. While ensuring the integrity of the vehicle color features, the method can effectively suppress the false matching caused by the redundant feature points. Then the nearest neighbor matching method is used to find the matching pairs, and the vehicle identification is finished by the discrimination degree weighing strategy. In the vehicle matching experiment with the same type and different colors, the matching number of the algorithm is less affected by the change of the color, and the stability of image matching is enhanced. The vehicle recognition experiment based on 25 kinds of vehicle model database shows that the method can eliminate the interference of the color features on the vehicle identification, and the total recognition accuracy of the method is improved to 88.2%-91.2%.

Key Words: Color Invariant Features, Scale-Invariant Feature Transform, Vehicle Recognition, Color Edge Detection, Discrimination Degree Weighing

1 Introduction

In recent years, vehicle information detection and recognition technology based on computer vision has been developed rapidly, where vehicle type recognition technology plays a powerful auxiliary role in traffic management and safety monitoring. At present, most surveillance systems use color video, and rich vehicle colors also provide a large amount of available information for vehicle type identification. However, when the traditional SIFT algorithm processes color images, color images are often converted into grayscale images and then the features are extracted and matched. Discarding color information and using only the grayscale information of the image may cause mismatches and interfere with the subsequent vehicle type identification process. Therefore, based on the SIFT algorithm to remove the interference of the color on the vehicle type identification is the focus of this article.

In 2004, LOWE proposed Scale Invariant Feature Transform(SIFT), which is invariant to rotation, scale scaling and brightness variation. It is also robust to change of perspective, affine transformation and noise, so it is widely used in image feature matching. In 2008, BAY et al proposed Speeded Up Robust Features(SURF). Although it inherits the advantages of the SIFT algorithm, it often gets fewer matches. When there are fewer image feature points, the matching real-time error is larger^[1]. XU Yanning et al. proposed a SIFT image matching algorithm combining color invariance and shape context. The color information was integrated on the basis of the traditional SIFT algorithm. The shape context histogram based on each contour point was replaced by the shape context histogram based on the center of gravity point, and the two cascaded to form a new eigenvectors, which effectively improved the matching accuracy. In the literature[4], Wang Run et al considered the

problem of ignoring the color information in the local features of the image, and proposed a scale-invariant feature transform method that integrated the global color information. The global shape information and color invariant information were added to the original SIFT frame by establishing the concentric coordinate system. What's more, the Euclidean distance was used as the matching cost function to reduce the false matching rate and enhance the matching stability and robustness. The algorithm proposed in [3-4] could effectively improve the matching accuracy of images in the presence of a large number of similar shaped regions, but none of them discussed the interference of color features on the image matching.

This paper presents a vehicle identification method based on color invariant SIFT features for the vehicle frontal images of the same size. In order to solve the interference problem of color on vehicle image matching, the color edge detection based on RGB space is firstly integrated into the vehicle frontal image to make the extracted vehicle features more complete. The color invariant SIFT feature descriptor is generated by combining the gray information to avoid the interference of different colors to SIFT feature matching and improve the stability and robustness of image matching. Finally, the discrimination degree weighing strategy is constructed according to the matching pairs to realize the vehicle type recognition.

2 SIFT Feature Extraction and Matching

The detection of the extreme points of SIFT operator is based on the difference of Gaussian (DOG) scale space. The implementation is to convolute the image with Gaussian kernel function with different scale factors and then subtract the Gaussian image $I(x, y)$ in the DOG scale space of dimension σ is defined as:

$$\begin{aligned} D(x, y, \sigma) &= (G(x, y, k\sigma) - G(x, y, \sigma)) * I(x, y) \\ &= I(x, y, k\sigma) - I(x, y, \sigma) \end{aligned} \quad (1)$$

$$G(x, y, \sigma) = \frac{1}{2\pi\sigma^2} e^{-\frac{x^2+y^2}{2\sigma^2}} \quad (2)$$

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Design and recognition of monocular visual artificial landmark based on arc angle information coding

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ABSTRACT: According to the requirements of monocular vision positioning of mobile robots in structured environment, a method of artificial landmark design, detection and recognition is proposed to adapt to the large field angle and invariance of rotation. An extensible artificial landmark based on arc-angle information coding is designed, the landmark detection and extraction are realized by structure contour detection, the extracted landmark image is corrected by Hough transform and inverse perspective transformation. After the image filtering and enhancement, the improved circle fitting algorithm is proposed to complete the ring detection and segmentation, and finally the arc angle is calculated by the vector method to identify the landmark and realize the decoding. The experimental results show that compared with the classical QR code method, when using the same imaging system, the landmark design and detection and recognition method proposed in this paper can realize the detection and recognition at longer distances and realize the accurate identification within the range of 0-60 degrees, and has strong anti-noise ability.

KEYWORDS: artificial landmark, recognition, contour detection, Hough transform, inverse perspective transform, circle fitting

1 INTRODUCTION

With the continuous development of computer technology and advanced sensor technology, mobile robot navigation technology has become more and more mature. In the mobile robot navigation system, the robot's accurate self-positioning is the most important issue in the whole system. The visual positioning method is the preferred technology for mobile robot positioning in the structured environment because of its advantages such as abundant information, simple system structure and controllable cost. Vision-based robot positioning technology is gradually maturing, the relevant positioning methods is also gradually increasing.

Hao Xiangyang et al. designed a dot-like coded mark consisting of 5 locating points and 1-3 coding points by using 5 letters and 20 numbers, and then realized indoor visual navigation by detecting and identifying marks^[1]. Zhou Haoyun and others proposed a new indoor positioning method based on artificial signposts, which used the feature points arranged in a radial arrangement, calculated the position of the camera and identified the marks by using the same inner points of different marks and the positions of the outer points^[2]. Tkachenko et al. used the center deviation of each module to improve the module identification after preprocessing the QR code. This method has been used for classification and standard QR code identification^[3]. Ren Hailin et al. proposed a sub-pixel-based QR code positioning method. Firstly, the position detection pattern was set to a large tolerance for initial positioning, and then a small tolerance was set for accurate positioning. For the pixel with accurate positioning

failure, the transition pixel was decomposed and then fine-tuned with the same tolerance so as to solve the problem of low positioning rate of QR code images with large amount of information and low resolution^[4]. Gorenzy et al. stuck the QR code on the ceiling, requiring the distance between the camera and the QR code to be fixed so as to detect and recognize the QR code and realize the self-positioning of the mobile robot^[5]. Among the above methods for locating mobile robots based on artificial landmark, one of them is a method for locating artificial marks based on numbers and letters, but such marks have the disadvantages of less amount of information, insufficient expansibility and limited anti-interference capability. Another is based on the QR code detection and recognition. The artificial landmark based on the QR code can carry larger amount of information, and can realize the precise positioning and recognition under the complicated background. However, due to its rich feature details, there are shortcomings such as the shorter distance of identification and the smaller field of view angle range.

In this paper, aiming at the problems of large field angle change, field of view rotation and large imaging distance change in the visual location of artificial landmark for mobile robots, an artificial landmark based on arc angle information coding is designed and a new recognition method for the landmark is proposed. Through the contour detection of the structure, the landmark detection and extraction are realized. Then the Hough transform and perspective transformation are used to correct the landmark image, the image quality is improved by Gaussian smoothing and fuzzy domain enhancement algorithm, the improved circular fitting algorithm is used to detect and segment the internal ring. By using the vector method, the center angle corresponding to the arc is calculated, and the landmark recognition and decoding are realized according to the information of each standard ring.

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变厚度复合材料板低速冲击能量监测

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摘 要: 为了监测变厚度复合材料层合板在使用过程中受到的低速冲击载荷, 将光纤传感及信号处理技术相结合, 建立了光纤布拉格光栅冲击能量监测系统。将光纤传感网络采集到的所有冲击样本信号进行 WEMD 分解; 根据样本信号冲击能量特征值建立冲击样本信号能量特征集合; 根据信号分解的第一阶分量确定厚度系数并修正能量特征集合, 评估实际冲击能量。结果表明, 基于 WEMD 分解的厚度系数修正方法将更低速冲击能量, 其中低灵敏度的大厚度区域平均误差从 15.19% 明显减少为 6.96%。提出的能量识别方法成功识别了 1~3 J 冲击能量, 其中最大误差为 15.67%, 平均误差为 5.5%。

关键词: 光纤光栅传感器; 变厚度复合材料板; 低速冲击; 冲击能量监测

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Low velocity impact energy monitoring for varying cross-section composite laminates

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Abstract: For monitoring the inner injuries by the low velocity impact (LVI) on varying cross-section composite laminates, a Fiber Bragg Grating (FBG) impact energy monitoring system based on the optical fiber sensing and signal processing technique was established. The spectrum signatures of all impact sample signals from the FBG sensing network were extracted by using the Whitening Empirical Mode Decomposition (WEMD) method. Then, the energy feature sets were set up based on the impact energy characteristic values of all sample signals. Finally, the thickness coefficients were determined according to the first-order component of the sample signals' decomposition, the energy feature sets were adjusted correspondingly, and the actual impact energy was estimated. The experimental results prove that the thickness coefficient correction method based on WEMD can evaluate LVI energy more accurately, the mean error in low sensitivity large thickness areas was reduced to 6.96% from 15.19%. The proposed energy discrimination method can discriminate the energy between 1~3 J, with the maximum error 15.67% and mean error 5.5%.

Key words: optic fiber bragg grating; composite laminate with varying thickness; low velocity impact; impact energy monitoring

复合材料在航空、机械、医学等领域的应用日趋广泛。随之而来的问题就是复合材料在使用过程中的动态监测需求^[1-4]。变厚度复合材料层合板的强度比一

般复合材料板有所提高, 但是动态载荷下的信号分析更为复杂。由于复合材料常常以层合板形式使用, 因此结构受到的各种载荷可能会造成层合板的内部剥离、断裂、脱层等等, 尤其是低速冲击所造成的内部损伤从外部不易察觉。传统的复合材料结构日常检测和维护虽然可以排除安全隐患, 但会耗费大量的时间和成本, 而实时监测变厚度复合材料层合板冲击信号可以对结构低速冲击损伤进行预警^[5]。近年来, 各国学者对复合材料变厚度结构进行了一些研究。李戈亮

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Abstract

An optimized Vibe target detection algorithm based on gray distribution and Minkowski distance

[Detailed](#)

[Compendex Ref ID](#)

Accession number: 00173204024195

Authors: Xiang, X. ¹; Jiao, Zhong ¹; Jiao, Guo ¹; Qiu, Chengcheng ¹; Li, Gang ¹; Hu, Xueqiang ¹; Zhang ¹; Fangsen, Zhao ¹

Author affiliation: Institute of Electronic Engineering, **Nantong** University, **Nantong** 226019, China; School of Education, **Nantong** University, **Nantong** 226019, China

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Record 10 From Compendex for Engineering Nanjing-WUXI-Fields, 1779-2019

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Full text



Abstract

Vehicle Recognition Method Based on Color Invariant SIFT Features

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[Full text](#)

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arc angle information coding

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Authors: Xu, Yanning^{1,2}, Li, Chengcheng¹, Zhang, Jian¹, Hua, J. ang^{1,2}, Dai, Q. uxia¹, Gu, Yaoping¹, Yu, Zhankun¹, Gu, Jieqiong^{1,2}, Li

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Full text

An image stabilization algorithm on corner detection and feature block matching

$$\mathcal{A}_0^{\text{eff}}(x) = \mathcal{A}_0(x) + \mathcal{O}(\epsilon^2) \quad \text{for } x \in \mathbb{R}^d, \quad \mathcal{A}_0^{\text{eff}}(x) = \mathcal{A}_0(x) + \mathcal{O}(\epsilon^2) \quad \text{for } x \in \mathbb{R}^d.$$
$$\text{Ag}(\text{HCO}_3)_2 + \text{HCl} \rightarrow \text{AgCl} + \text{H}_2\text{O} + \text{CO}_2$$
[illegible][illegible][illegible]
$$\frac{d}{dt} \int_{\Omega} u^2 dx + \int_{\Gamma} u^2 d\sigma = - \int_{\Omega} u \Delta u dx + \int_{\Gamma} u \frac{\partial u}{\partial n} d\sigma.$$

2. *Journal of Management Studies*

Synonyms: *Chrysomelidae*; *Coleoptera*

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

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$$\frac{d}{dt} \left(\frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}$$

1530 N. 13th St., 14th & 15th Sts.

Consistent with the above, we have

[illegible]

6. *Abstracts*: *Abstracts* of the papers presented at the conference are included in the proceedings.

[illegible]

Conference code: 110112

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[illegible]

Low velocity impact energy monitoring for varying cross-section composite laminates

$$A_{\alpha} = \{x \in \mathbb{R}^n : x_1 \leq x_2 \leq \dots \leq x_n, x_1 + x_2 + \dots + x_n = \alpha\}.$$
$$\sum_{j=0}^{\infty} \frac{(-1)^j}{(j+1)!} = e^{-1} - 1 + 1 - \frac{1}{2!} + \frac{1}{3!} - \frac{1}{4!} + \dots = e^{-1}$$
[illegible]
$$= \frac{1}{2} \left(\frac{1}{2} \right) = \frac{1}{4}$$

\mathbb{R}^n 上のベクトル場 X の \mathbb{R}^n 上の積分曲線は、 \mathbb{R}^n の点 x を始点とする \mathbb{R}^n 上の曲線 γ が、 $\gamma'(t) = X(\gamma(t))$ を満たすとき、 γ は X の \mathbb{R}^n 上の積分曲線である。

[illegible]
$$e_{\alpha} \in \mathfrak{g}_{\alpha} \otimes \mathfrak{g}_{\alpha}^*$$
$$\frac{1}{2} \log \frac{1}{2} = -0.5$$
$$1980-1987 \quad 1988-1996 \quad 1997-2000 \quad 2001-2004$$
[illegible]
$$P_{\text{max}} = 1.5 \times 10^{-10} \text{ W}$$
$$\frac{1}{2} P_{\frac{1}{2}} = \frac{1}{2} \left(\frac{1}{2} \right) = \frac{1}{4}$$

2000

“... 1990 年 12 月 1 日”

$$x = \frac{1}{2} \left(\frac{1}{2} + \frac{1}{2} \right) = \frac{1}{2}$$
[illegible]

Related Documents

$$L_{\mathcal{P}}(T) = \sum_{i=1}^n \sum_{j=1}^n \frac{1}{2} \left(\frac{1}{d_i} + \frac{1}{d_j} \right) a_{ij}^2$$
$$\text{val } \text{be } \tau : \tau = \text{true} \quad \vdash \quad \tau \in \mathcal{K}$$
$$A = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{pmatrix} \quad \text{and} \quad B = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{pmatrix}.$$
$$\psi^2 \in \mathbb{H}_2 \cap \mathcal{H}_{10} = 1^{\oplus 5} \oplus \mathbb{V}_2.$$

$\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

$$N^{\text{eff}} = A_{\text{eff}}^{-1} = \frac{1}{2} \frac{1}{\cos^2 \theta} \left(\frac{1}{\sin^2 \theta} + \frac{1}{\cos^2 \theta} \right) = \frac{1}{2} \frac{1}{\cos^4 \theta} = 1.5$$


1519-2

Back in Scoop[illegible]
$$A_{1+2} = A_1^2 + A_2^2 + 1$$

• • •

$$V_{\text{eff}} = E - \frac{1}{2} \hbar \omega_{\text{ph}} \left(1 - \frac{1}{2} \frac{\omega_{\text{ph}}}{\omega} \right)$$

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20

附件 1

南通大学自然科学类重要学术期刊分级目录 (2018 年版)

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在 Science、Nature、Cell 全文发表,或在 Science、Nature、Cell 子刊全文发表且 IF ≥ 10 。

二、一级学术期刊(论文)

1. 在国内外学术刊物上全文发表,并被 SCI(E)、EI 收录的期刊论文

2. 《中国科学》、《科学通报》

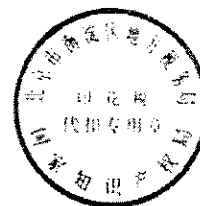
三、二级学术期刊

序 号	刊 物 名 称
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2	数学年刊 (A 辑)
3	计算数学
4	应用概率统计
5	应用数学学报
6	运筹学学报
7	物理学报
8	物理
9	原子与分子物理学报

32	仪表技术与传感器
33	传感技术学报
34	材料研究学报
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36	高分子材料科学与工程
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发明名称：基于DSP的相关跟踪方法及专用装置

发明人：徐一鸣；陆观；顾菊平；华亮；陈娟；陈峰

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专利申请日：2013年07月22日

专利权人：南通大学

授权公告日：2014年09月10日

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