

控制科学与工程博士后流动站

CONTROL TECHNOLOGY & ENGINEERING POSTDOCTORAL FELLOWS PROGRAMME

西北工业大学控制科学与工程博士后流动站设立于 1999 年,包含了“控制理论与控制工程”、“监测技术与智能系统”、“系统工程”、“模式识别与智能系统”、导航、制导与控制“五个二级学科,其中“控制理论与控制工程”为国家重点学科,依托的研究基地有:“无人机特种技术”国防科技重点实验室,“飞行控制与仿真技术”陕西省重点实验室,“航空火力与指挥控制系统”航空科技重点实验室。

Northwestern Polytechnical University (NPU) set up its Control Technology & Engineering Postdoctoral Fellows Programme (CTE-PFP for short) in 1999, which include 5 sub-disciplines, i.e. Control Theory & Engineering, Monitoring Technology and Intelligent Systems, Systems Engineering, Pattern Recognition and Intelligent Systems, and Guidance, Navigation and Control (GNC). Research on Control Theory & Engineering, as a discipline of national importance, is conducted in the UAV Technology Laboratory (a key defense technology laboratory), the Flight Control and Simulation Technology Laboratory (a Shaanxi provincial key technological laboratory), and the Airborne Fire Control System (AFCS) Laboratory (a key aeronautical technology laboratory).

一、主要研究方向

I. Main Research Orientation

主要研究方向为:非线性系统及高性能飞机控制;多模多尺度复杂系统建模、估计与仿真;网络化系统信息处理、信息安全、控制与优化;先进飞行控制系统建模、设计、优化、仿真与验证;精确导航与制导;飞行器电液作动与控制;信息融合与远程预警;多源图像处理与融合;模式识别与生物信息处理。

The main research orientation of CTE-PFP covers nonlinear system & high-performance aircraft control; multi-modality, multidimensional complex systems modeling, estimation and simulation; networked control system (NCS) information processing, security, control and optimization; advanced flight control system modeling, design, optimization, simulation and validation; precision navigation & guidance; air vehicle electro-hydraulic actuator and control; information fusion and long-range early warning; multi-source image processing & fusion; and pattern

recognition and bioinformation processing.

二、科研成果：

II. Scientific Achievements

近 5 年来在研和完成科研项目共 62 项，科研经费 6352 万元：其中包括国家“973 计划”项目 1 项，国家自然科学基金重点项目 2 项，国家自然科学基金项目 9 项，“863 计划”项目 3 项，教育部“跨世纪（新世纪）优秀人才培养计划”3 项，总装创新项目 1 项，总装预研项目 2 项，国防基础科研、各类基金项目 18 项。共获国家科技进步二等奖 1 项，省部级以上科研成果奖 11 项（一等奖 2 项、二等奖 4 项、三等奖 4 项）；获得授权发明专利 9 项。共发表学术论文 720 余篇（其中 SCI 43 篇，EI 313 篇，ISTP 87 篇）；他引 1600 余次。出版专著 6 部，教材 5 部。

Over the recent 5 years CTE-PFP has obtained a total grant of ¥63.52M for 62 research programmes, underway or completed, including 1 973 Program, 2 NNSF key programmes, 9 NNSF programmes, 3 863 Programs, 3 MOE Epoch-making (New Century) Top Talent programmes, 1 General Armament Department Innovation programme, 2 General Armament Department Preliminary Research programmes, and 18 fundamental defense technology funds and programmes. CTE-PFP has won a national 1st prize in technological progress, 11 provincial/ministerial science achievement prizes or higher (including 2 1st prizes, 4 2nd prizes and 4 3rd prizes), and 9 grants of patent invention. CTE-PFP has issued 720+ academic papers, including 43 published on SCI, 313 published on EI and 87 published on ISTP, which total 1,600+ citations. Besides, 6 works and 5 coursebooks have been published.

三、科研条件

III. Research Platforms

在“十五”期间，“211 工程”和“985 工程”对“控制科学与工程”一级学科投入 1630.6 万元,建设了 4 个研究系统；“十一五”期间,投入 1900 万元，建设了“基于多平台网络与信息获取的无人飞行器自主飞行控制及三维可视化”、“感知、控制、作战一体化信息栅格系统”2 个科技创新平台。本学科拥有“飞行控制与仿真技术”陕西省级重点实验室，建立的飞行器综合测试、仿真、人机空 - 地远程控制、地面融合测试验证系统为飞行器高速仿真、新型战斗机飞行仿真等研究提供了基本条件；本学科拥有“航空火力与指挥控制系统”航空科技重点实验室等研究基地，在复杂环境下空天多源信息融合和智能处理领域形成特色，其中多模多尺度动态估计理论、新型相关反馈图像数据检索方法等研究工作已达到或接近国际一

流研究水平。

In the 10th Five-year Plan period, Project 211 and Project 985 spent ¥16.306M on Control Technology & Engineering (a discipline), establishing 4 research systems. In the 11th Five-year plan period, ¥19M was spent on 2 technological innovation platforms, i.e. UAV Autonomous Flight Control and 3D Visualization Based on Multi-platform Network and Information Acquisition, and Integrated Sensing, Control and Combat Information Grid. The discipline boasts of a provincial Flight Control and Flight Simulation Technology Key Laboratory which provides air vehicle high-speed simulation and new fighter flight simulation with fundamental conditions, such as the integrated air vehicle test, simulation, air-to-ground remote control system, and the integrated terrestrial network test & validation system. The discipline also boasts of such key aviation technology laboratories as the Air firepower and Command System Laboratory. This system forms a feature when combined with aerospace multi-source information fusion and intelligent information processing. CTE-PFP has achieved or approximated the level of the international science community in research on the theory of multi-modality, multidimensional dynamic estimation, and the novel method of relevance feedback image & data retrieval.

三、学术队伍及带头人

III. Academic Team and Lead Researchers

本站拥有一支学术思想活跃、年龄结构合理、综合素质优良的实力雄厚的学术队伍。现有教授 31 人、副教授 21 人、讲师 10 人，具有博士学位的教师为 51 人，占教师总数的 82%。学科带头人中有 2 人获得国家杰出青年科学基金，2 人为国务院学科评议组成员；2 人获得教育部跨世纪人才和新世纪人才基金

CTE-PFP is supported by an enthusiastic and powerful academic team of reasonable age structure and fine overall qualities. It comprises 31 professors, 21 associate professors, 10 lecturers and 51 instructors with a doctor's degree (accounting for 82% of all teachers). 2 of the lead researchers are winners of the prize of National Science Fund for Distinguished Young Scholars, 2 are members of the State Council Academic Discipline Review and Assessment Panel, and 2 are winners of the MOE Epoch-making (New Century Talent Fund) Talent Development Fund.

四、招收计划

IV. Enrollment Programme

西北工业大学自动化学院控制科学与工程学科博士后流动站与航空航天领域的总体所、控制与导航方面的专业以及其他相关专业的厂、所(院)建立了

长期良好的合作关系，为博士后科研工作提高了广阔的平台。

Control Technology & Engineering, as a postdoctoral fellows programme of the NPU School of Automation, is supported by age-old favorable partnerships with the institutes, plants and academies which specialize in aerospace engineering, control & guidance and other disciplines, The partnerships provide a broader platform for postdoctoral research.

每年招收 8 名博士后。

Every year 8 postdoctoral fellows are enrolled.