GPEML 2025

2025遗传规划与进化机器学习理论及应用学术论坛暨暑期学校

2025 Forum and Summer School on Genetic Programming and Evolutionary Machine Learning

2025年7月10-12日 | 中国 · 郑州 | July 10-12 2025, Zhengzhou, China

会议手册

CONFERENCE BROCHURE

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活动介绍

本次活动聚焦于遗传规划（Genetic Programming, GP）与进化机器学习（Evolutionary Machine Learning, EML）的前沿理论和应用。随着计算智能的快速发展，GP 和 EML 在自动程序生成、特征工程、可解释性人工智能、进化深度学习等领域展现出广阔的应用前景。本论坛将汇聚国内外专家学者，共同探讨遗传规划与进化机器学习的最新研究进展、关键技术及其在实际问题中的应用。

论坛主题（包括但不限于）：

- 遗传规划的理论发展与优化策略
- 进化机器学习在深度学习、强化学习中的应用
- 进化计算在自动特征工程和 AutoML 中的角色
- 多目标进化优化与可解释性人工智能
- 计算机视觉、图像处理中的进化方法
- 遗传规划与自然语言处理、推荐系统的结合
- 工业、医疗、金融等领域的实际应用案例

本次活动将于 7 月 10 日至 12 日在河南郑州召开，活动为期 3 天，旨在促进学术交流，推动 GP 与 EML 领域的创新发展，为研究者提供一个展示成果、交流思想的平台。期待您的参与！

Event Introduction

This event focuses on the cutting-edge theories and applications of Genetic Programming (GP) and Evolutionary Machine Learning (EML). With the rapid advancement of computational intelligence, GP and EML have demonstrated tremendous potential in automated program generation, feature engineering, explainable AI, evolutionary deep learning, and other emerging fields. The forum will gather leading experts and scholars worldwide to discuss the latest research advances, key technologies, and practical applications of GP and EML.

Forum Topics (including but not limited to):

- Theoretical developments and optimization strategies in GP
- Applications of evolutionary machine learning in deep learning and reinforcement learning
- The role of evolutionary computation in automated feature engineering and AutoML
- Multi-objective evolutionary optimization and explainable artificial intelligence
- Evolutionary methods in computer vision and image processing
- Integration of GP with natural language processing and recommendation systems
- Practical application cases in industries such as healthcare, finance, and more

The event will take place from July 10th to 12th in Zhengzhou, Henan Province, spanning three days. It aims to foster academic exchange, promote innovation in the fields of GP and EML, and provide researchers with a platform to showcase their work and exchange ideas. We look forward to your participation!

举办单位

【主办方】IEEE 计算智能学会

【承办方】郑州大学电气与信息工程学院

【协办方】河南工学院、河南省生物信息学会 (筹)、IEEE CIS 郑州分会、IEEE 郑州大学学生分会

Organizers

Host:

IEEE Computational Intelligence Society

Organizer:

School of Electrical and Information Engineering, Zhengzhou University

Co-organizers:

Henan Institute of Technology

Henan Society of Bioinformatics (Preparatory)

IEEE CIS Zhengzhou Chapter

IEEE Zhengzhou University Student Branch

时间及地点

时间：2025 年 7 月 10 日 -12 日

地点：郑州华智酒店（郑州中原区科学大道 97 号科学大道与长椿路交叉口）

Date & Venue

Time: July 10–12, 2025

Venue: Huazhi Hotel, Zhengzhou

(No. 97, Kexue Avenue, Zhongyuan District, Zhengzhou – Intersection of Kexue Avenue and Changchun Road)

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乔康加 Kangjia Qiao
郑州大学
Zhengzhou University

会议日程：

注册地点：华智酒店 一楼
会场：华智酒店 三楼 华夏厅

7 月 10 日 14:00-21:00 报到

7 月 11 日 上午

9:00-9:30	开幕式	主持人：徐伟
	校领导致辞	
	合影	
9:30-10:10	邀请报告：线性遗传规划 报告专家：Prof. Wolfgang Banzhaf	主持人：梁静
10:10-10:30	茶歇	
10:30-11:10	邀请报告：演化机器学习回顾：五十年的发展历程 报告专家：张孟杰教授	主持人：冯亮
11:10-11:50	邀请报告：基于大模型的程序和测试用例协同演化方法 报告专家：袁源教授	主持人：于坤杰
11:50-12:20	圆桌讨论：GPEML 的独特优势有哪些？当前该方向发展与落地的最大瓶颈是什么，应该如何突破？ 邀请专家：张孟杰教授、Prof. Wolfgang Banzhaf、钱超教授、袁源教授、孙亚楠教授	主持人：薛冰

7 月 11 日 下午

14:00-14:40	邀请报告：演化学习：从理论到实践 报告专家：钱超教授	主持人：薛羽
14:40-15:20	邀请报告：基于遗传规划的特征空间变换 报告专家：Prof. Leonardo Trujillo	主持人：P. N. Suganthan
15:20-15:40	茶歇	
15:40-16:20	邀请报告：进化神经架构搜索在多类别分类中的运行时分析 报告专家：孙亚楠教授	主持人：周新宇
16:20-17:00	邀请报告：中立性如何塑造进化：简单偏见和搜索 报告专家：胡婷教授	主持人：郭伟峰
17:00-17:40	邀请报告：基于大语言模型的自动化算法设计 报告专家：陆智超教授	主持人：毕莹

7 月 12 日 上午

9:00-9:40	邀请报告：基于协同进化的自编码器训练方法 报告专家：Dr. Erik Hemberg	主持人：王棚
9:40-10:20	邀请报告：PDE 求解器：借助演化策略从黑盒逼近走向可解释的科学工具 报告专家：江敏教授	主持人：李伟
10:20-10:40	茶歇	
10:40-11:20	邀请报告：演化模型，探索空间：进化计算是通向高效与创造力的路径 报告专家：A/Prof. Penousal Machado	主持人：岳彩通
11:20-12:00	邀请报告：用于自动特征与模型学习的遗传规划：从理论到实际应用 报告专家：薛冰教授	主持人：杨翠娥
12:00-12:30	圆桌讨论：GPEML 如何发表顶会或者顶刊论文? 邀请专家：薛冰教授、A/Prof. Penousal Machado、Prof. Leonardo Trujillo、江敏教授、钟竞辉教授	主持人：胡婷

7 月 12 日 下午

14:00-14:40	邀请报告：融合大小模型的复杂系统数据驱动优化方法 报告专家：金耀初教授	主持人：张孟杰
14:40-15:20	邀请报告：基于预训练 Transformer 与遗传规划集成的符号回归 报告专家：钟竞辉教授	主持人：堵威
15:20-15:40	茶歇	
15:40-16:20	邀请报告：遗传规划在农业遥感中的创新应用研究 报告专家：陆苗教授	主持人：陈科
16:20-17:00	邀请报告：贪心是好的？！ 报告专家：贾亚晖教授	主持人：刘奇奇
17:00-17:40	郑州大学 GPEML 最新研究进展及闭幕式 毕莹教授	主持人：袁功霖

Schedule

Registration: 1st Floor, Huazhi Hotel
Venue: Huaxia Hall, 3rd Floor, Huazhi Hotel

July 10 14:00-21:00 Registration

July 11 2025 Morning

9:00-9:30	Opening Ceremony Speeches from Vice-Presidents Group Photo	Chair: Wei Xu
9:30-10:10	Invited Talk：Linear Genetic Programming Speaker：Prof. Wolfgang Banzhaf	Chair: Jing Liang
10:10-10:30	Tea break	
10:30-11:10	Invited Talk：Revisiting Evolutionary Machine Learning: 50 Years of Development Speaker：Prof. Mengjie Zhang	Chair: Liang Feng
11:10-11:50	Invited Talk：Co-Evolutionary Approach to Program and Test Case Generation with Large Language Models Speaker：Prof. Yuan Yuan	Chair: Kunjie Yu
11:50-12:20	Panel Discussion：What are the unique advantages of GPEML? What are the Biggest Bottlenecks in GPEML Development and Real-World Application, and how to overcome them? Speaker：Prof. Mengjie Zhang, Prof. Wolfgang Banzhaf, Prof. Chao Qian, Prof. Yuan Yuan, Prof. Yanan Sun	Chair: Bing Xue

July 11 Afternoon

14:00-14:40	Invited Talk：Evolutionary Learning: From Theory to Practice Speaker：Prof. Chao Qian	Chair: Yu Xue
14:40-15:20	Invited Talk：Feature Space Transformations with Genetic Programming Speaker：Prof. Leonardo Trujillo	Chair: P. N. Suganthan
15:20-15:40	Tea break	
15:40-16:20	Invited Talk：Runtime Analysis of Evolutionary NAS for Multiclass Classification Speaker: Prof. Yanan Sun	Chair: Xinyu Zhou
16:20-17:00	Invited Talk：How Neutrality Shapes Evolution: Simplicity Bias and Search Speaker：A/Prof. Ting Hu	Chair: Weifeng Guo
17:00-17:40	Invited Talk：Automated Algorithm Design with Large Language Models Speaker：A/Prof. Zichao Lu	Chair: Ying Bi

July 12 2025 Morning

9:00-9:40	Invited Talk: Training Autoencoders with Cooperative Coevolution Speaker：Dr. Erik Hemberg	Chair: Peng Wang
9:40-10:20	Invited Talk：Neural PDE Solvers: From Black-Box Approximators to Transparent Scientific Tools via Evolution-Inspired Strategies Speaker：Prof. Min Jiang	Chair: Wei Li
10:20-10:40	Tea break	
10:40-11:20	Invited Talk：Evolving Models, Exploring Spaces: Evolutionary Computation as a Pathway to Efficiency and Creativity Speaker：A/Prof. Penousal Machado	Chair: Caitong Yue
11:20-12:00	Invited Talk：Genetic Programming for Automated Feature and Model Learning: From Theory to Real-World Applications Speaker：Prof. Bing Xue	Chair: Cuie Yang
12:00-12:30	Panel Discussion：How to Publish GPEML Papers in Top-Tier Conferences and Journals ? Speaker：Prof. Bing Xue, A/Prof. Penousal Machado, Prof. Leonardo Trujillo, Prof. Min Jiang, Prof. Jinghui Zhong	Chair: Ting Hu

7 月 12 日 下午

14:00-14:40	Invited Talk：Data-driven Optimization of Complex Systems Assisted by Small and Large Models Presenter：Prof. Yaochu Jin	Chair: Mengjie Zhang
14:40-15:20	Invited Talk：Integrating Pretrained Transformers with Genetic Programming for Symbolic Regression Speaker：Prof. Jinghui Zhong	Chair: Wei Du
15:20-15:40	Tea break	
15:40-16:20	Invited Talk：Innovative Applications of Genetic Programming in Agricultural Remote Sensing Speaker：Prof. Miao Lu	Chair: Ke Chen
16:20-17:00	Invited Talk：Greedy is Good ?! Speaker：A/Prof. Yahui Jia	Chair: Qiqi Liu
17:00-17:40	Research on GPEML in Zhengzhou University & Closing Ceremony Prof. Ying Bi	Chair: Gonglin Yuan

大会嘉宾

Prof. Wolfgang Banzhaf

美国密歇根州立大学

报告题目：线性遗传规划

报告摘要：报告将讨论基于线性表征遗传规划算法的优势与局限，并结合实际应用与理论层面展开深入分析。

专家简介：Wolfgang Banzhaf 教授现任美国密歇根州立大学计算机科学与工程系的“John R. Koza 遗传规划讲席教授”，这是美国首个专门设立用于支持进化计算研究的讲席教职。此前，他曾在加拿大纽芬兰纪念大学计算机科学系担任大学研究教授，并于 2003 年至 2009 年以及 2012 年至 2016 年两度出任系主任。在获得物理学博士学位并完成博士后研究后，他曾在日本和美国的三菱电机公司担任研究科学家。1993 年起，他进入学术界，担任德国多特蒙德工业大学应用计算机科学系副教授。

他的研究兴趣主要集中在生物启发式计算，特别是进化计算与复杂自适应系统。他长期研究线性遗传规划（Linear Genetic Programming）以及进化中的中立性（尤其在遗传规划领域中的体现）。近期他还共同主编了 Springer 出版社的专著《进化机器学习手册（Handbook on Evolutionary Machine Learning)》。同时，Wolfgang Banzhaf 教授一直致力于推动遗传规划领域的发展，创办了学术期刊《Genetic Programming and Evolvable Machines》，并是多个进化计算期刊的编委，是首个遗传规划书籍的主要出版者，共同创立了遗传规划欧洲学术会议（EuroGP），并常年在美国组织遗传规划理论与实践研讨会（GPTP）。Wolfgang Banzhaf 教授在遗传规划全球研究人员中排第五，于 2007 年荣获欧洲进化计算杰出成就奖等荣誉。

Prof. Wolfgang Banzhaf

Michigan State University

Title: Linear Genetic Programming

Abstract: This talk will introduce the strengths and weaknesses of linear representation of Genetic Programming. The applications and theoretical aspects of the representation will also be highlighted.

Biography: Wolfgang Banzhaf holds the first endowed chair dedicated to Evolutionary Computation in the United States, the John R. Koza Chair for Genetic Programming, in the Department of Computer Science and Engineering at Michigan State University. Previously, he was a University Research Professor in the Department of Computer Science, Memorial University of Newfoundland, where he also served as head of department from 2003 to 2009 and from 2012 to 2016. After a PhD and postdoc in Physics, he worked as a research scientist at Mitsubishi Electric in Japan and the US before joining academia in 1993 as associate professor of Applied Computer Science at the Technical University of Dortmund in Germany.

His research interests are in the field of bio-inspired computing, notably evolutionary computing and complex adaptive systems. A recurrent theme of his work is Linear Genetic Programming and neutrality in evolution (particularly Genetic Programming). He recently co-edited Springer's “Handbook on Evolutionary Machine Learning”.

He has founded the scholarly journal “Genetic Programming and Evolvable Machines”, published quarterly by Springer and is editorial board member of a number of journals: Artificial Life, Applied Soft Computing, Computational Intelligence, Theoretical Computer Science-C (TCS-C), Intl. J. of Parallel, Emergent and Distributed Systems, PeerJ Computer Science, Transactions on Evolutionary Learning and Optimization. He is lead author of the first textbook on Genetic Programming, and has co-founded the European Conference series on Genetic Programming. He has been organizing the Genetic Programming Theory and Practice (GPTP) workshop in the United States for many years. Prof. Wolfgang Banzhaf ranks fifth among global researchers in genetic programming. He has received the EvoStar Award for Outstanding Achievements in Evolutionary Computation in Europe in 2007.

金耀初教授

西湖大学

报告题目：融合大小模型的复杂系统数据驱动优化方法

报告摘要：本次报告简要介绍面向复杂系统的数据驱动优化，包括其动机、主要挑战以及现有方法。随后介绍该研究领域中的最新进展，如大规模优化、隐私保护优化、基于图神经网络的端到端组合优化、基于扩散模型的优化方法以及大语言模型（LLM）辅助的优化方法。最后讨论当前仍面临的挑战和未解决的问题。

专家简介：金耀初教授分别于 1988 年、1991 年和 1996 年在中国杭州浙江大学电气工程系获得学士、硕士和博士学位，并于 2001 年在德国波鸿鲁尔大学神经信息研究所获得工学博士学位。现任西湖大学工学院人工智能讲席教授，人工智能系主任以及可信与通用人工智能实验室主任。在此之前，他曾于 2021 至 2023 年担任德国联邦教育与研究部资助的“洪堡人工智能教授”，任教于德国比勒费尔德大学技术学院；并于 2010 至 2021 年担任英国萨里大学计算机科学系的“萨里杰出讲席教授”和计算智能教授。他还曾于 2015 至 2017 年担任芬兰于韦斯屈莱大学“芬兰杰出教授”以及中国东北大学“长江特聘讲座教授”。

主要研究方向包括人工智能理论、算法及其在科学、技术与工业问题中的广泛应用。现任 IEEE 计算智能学会（IEEE CIS）主席、《Complex & Intelligent Systems》期刊主编。荣获 2025 年 IEEE 弗兰克·罗森布拉特奖（Frank Rosenblatt Award），自 2019 年起连续被科睿唯安（Clarivate）评为“高被引科学家”。他同时是欧洲科学院（Academia Europaea）院士和 IEEE 会士（Fellow of IEEE）。

Prof. Yaochu Jin

Westlake University

Title: Data-driven optimization of complex systems assisted by small and large models

Abstract: This talk will introduce the data-driven optimization for complex systems, including the motivation, main challenges, and existing approaches. Then, it presents the recent advances in this research field, such as large-scale optimization, privacy-preserving optimization, graph neural network-based end-to-end combinatorial optimization, diffusion model-based optimization, and LLM-assisted optimization. Finally, main challenges and open questions are discussed.

Biography: Yaochu Jin received the BSc, MSc and PhD degrees from the Electrical Engineering Department, Zhejiang University, Hangzhou, China in 1988, 1991 and 1996, respectively. He received the Dr.-Ing. from the Institute of Neuroinformatics, Ruhr University Bochum, Germany in 2001.

He is presently Chair Professor of AI, Head of the Artificial Intelligence Department, Director of the Trustworthy and General AI Laboratory, School of Engineering, Westlake University, Hangzhou, China. Prior to that, he was “Alexander von Humboldt Professor for Artificial Intelligence” endowed by the German Federal Ministry of Education and Research, with the Faculty of Technology, Bielefeld University, Germany from 2021 to 2023, and Surrey Distinguished Chair, Professor in Computational Intelligence, Department of Computer Science, University of Surrey, Guildford, U.K. from 2010 to 2021. He was also “Finland Distinguished Professor” with University of Jyväskylä, Finland, and “Changjiang Distinguished Visiting Professor” with the Northeastern University, China from 2015 to 2017. His main research interests include AI theory, algorithms and applications in a wide range of scientific, technological and industrial problems.

Prof Jin is presently the President of the IEEE Computational Intelligence Society and the Editor-in-Chief of Complex & Intelligent Systems. He is the recipient of the 2025 IEEE Frank Rosenblatt Award. He was named “Highly Cited Researcher” by Clarivate from 2019 consecutively. He is a Member of Academia Europaea and Fellow of IEEE.

张孟杰 教授

惠灵顿维多利亚大学

报告题目：演化机器学习回顾：五十年的发展历程

报告摘要：近年来，进化机器学习在学术界和工业应用中变得越来越流行。本次报告将首先回顾进化机器学习的发展历史，概述过去 50 年来的重大进展。随后重新探讨进化机器学习的主要范式以及它在以下领域的成功应用：分类、特征选择、回归、聚类、计算机视觉与图像分析、调度与组合优化、深度学习迁移学习、可解释 AI，以及生成式 AI。此外，报告还将讨论主要应用场景、当前挑战、经验教训，以及未来可能的发展机遇，以全面介绍进化机器学习在人工智能领域的现状与前景。

专家简介：张孟杰教授是新西兰皇家科学院院士、新西兰工程院院士、IEEE Fellow、IEEE 杰出讲师。现任惠灵顿维多利亚大学计算机科学教授、数据科学与人工智能中心主任、进化计算与机器学习研究团队负责人。

研究主要集中在人工智能、机器学习和大数据领域，特别是在进化学习与优化、特征选择与构造、大维度数据降维、计算机视觉与图像分析、调度与组合优化、不平衡数据与缺失数据分类、进化深度学习与迁移学习等。在国际权威期刊和会议上发表论文 900 多篇，其中 IEEE Transactions 期刊 170 多篇。先后担任十余本国际期刊的编委，包括 IEEE Transactions on Evolutionary Computation、IEEE Transactions on Cybernetics、Evolutionary Computation Journal（MIT Press），并在多个重要的人工智能和进化计算会议中担任主席。 2023 年他荣获 EvoStar/SPECIES 颁发的“欧洲进化计算杰出贡献奖”。

自 2007 年以来一直被 GP 文献数据库评为全球前五名遗传规划研究者，目前排名第 2 位（http://www.cs.bham.ac.uk/~wbl/biblio/gp-html/index.html）。先后担任 IEEE CIS（IEEE Computational Intelligence Society）智能系统应用技术委员会、IEEE CIS 新兴技术技术委员会、IEEE CIS 进化计算技术委员会主席、IEEE 计算智能学会进化特征选择与构建任务组副主席、IEEE 计算智能学会进化计算机视觉与图像处理任务组副主席，IEEE 新西兰计算智能分会首任主席。

Prof. Mengjie Zhang

Victoria University of Wellington

Title: Revisiting Evolutionary Machine Learning: 50 Years of Development

Abstract: Evolutionary machine learning have been very popular over the recent years. In this talk, I will firstly provide a brief overview of the history of evolutionary machine learning with the major developments over the past 50 years. Then, I will revisit the main paradigms of evolutionary machine learning and their successes in classification, feature selection, regression, clustering, computer vision and image analysis, scheduling and combinatorial optimisation, deep learning, transfer learning and XAI/XML, and generative AI. The main applications, challenges, experience, and the potential opportunities will be also discussed.

Biography: Mengjie Zhang is a Fellow of Royal Society of New Zealand, a Fellow of New Zealand Engineering, a Fellow of IEEE, and an IEEE Distinguished Lecturer. He is currently a Professor of Computer Science in Te Herenga Waka—Victoria University of Wellington, Director of the Centre for Data Science and Artificial Intelligence, and Head of the Evolutionary Computation and Machine Learning Research Group.

His research is mainly focused on AI, machine learning and big data, particularly in evolutionary learning and optimization, feature selection/construction and big dimensionality reduction, computer vision and image analysis, scheduling and combinatorial optimization, classification with unbalanced data and missing data, and evolutionary deep learning and transfer learning. Prof Zhang has published over 900 research papers in refereed international journals and conferences, including 170+ papers in IEEE Transactions Journals. He has been serving as an associated editor for over ten international journals including IEEE Transactions on Evolutionary Computation, IEEE Transactions on Cybernetics, the Evolutionary Computation Journal (MIT Press), and involving major AI and EC conferences as a chair. He received the “EvoStar/SPECIES Award for Outstanding Contribution to Evolutionary Computation in Europe” in 2023.

Since 2007, he has been listed as a top five (currently No. 4) world genetic programming researchers by the GP bibliography (http://www.cs.bham.ac.uk/~wbl/biblio/gp-html/index.html). Prof Zhang is a past Chair of the IEEE CIS Intelligent Systems Applications Technical Committee, the IEEE CIS Emergent Technologies Technical Committee and the IEEE CIS Evolutionary Computation Technical Committee, a vice-chair of the IEEE CIS Task Force on Evolutionary Feature Selection and Construction, a vice-chair of the IEEE CIS Task Force on Evolutionary Computer Vision and Image Processing, and the founding chair of the IEEE Computational Intelligence Chapter in New Zealand.

薛冰教授

惠灵顿维多利亚大学

报告题目：用于自动特征与模型学习的遗传规划：从理论到实际应用

报告摘要：机器学习已成为解决各种现实世界挑战的强大工具，其成功在很大程度上取决于特征质量和模型的有效性。遗传规划作为一种进化计算方法，提供了独特且高效的解决方案，能够同时优化特征学习和模型生成，使其成为推动自动化机器学习发展的有前景的方法。本次报告将介绍 GP 的基本原理及其在复杂自动学习任务中的适用性，并深入探讨基于 GP 的自动特征学习和模型生成在不同领域的最新研究进展，如分类、符号回归和图像分析。本次报告将展示 GP 方法如何在准确性、模型复杂度、计算效率和可解释性方面提升性能，并突出其在医疗健康、生物学、水产养殖、园艺和农业等现实问题中的应用价值。此外，本次报告还将探讨当前的挑战与机遇，全面概述 GP 在该领域的现状及未来潜力。

专家简介：薛冰，IEEE Fellow、新西兰工程院院士。目前担任惠灵顿维多利亚大学人工智能教授，同时兼任工程与计算机科学学院副院长以及数据科学与人工智能中心副主任。研究主要集中在人工智能、机器学习和进化计算，尤其包括遗传规划、进化机器学习、特征选择和图像分析以及这些技术在水产养殖、海洋科学、生物学、医疗保健、森林科学等领域的实际应用。在国际权威期刊和会议上发表论文 500 多篇，其中 IEEE Transactions 期刊 100 多篇，谷歌学术引用超过 2 万次，是科睿唯安高被引学者。先后主持多个项目。担任 IEEE 计算智能学会行政委员会（AdCOM）成员以及 ACM SIGEVO（ACM 遗传与进化计算特别兴趣组）执行委员会成员。在多个国际会议中担任组织职务，如 PRICAI 2025 大会主席，IVCNZ 2025 大会主席，EuroGP 2025 大会主席，IEEE CEC 2024 会议主席，EuroGP 2024 会议主席等。先后担任 IEEE Transactions on Evolutionary Computation、IEEE Transactions on Artificial Intelligence、IEEE Computational Intelligence Magazine、ACM TELOACM Transactions on Evolutionary Learning and Optimization 等多个学术期刊的编委。

Prof. Bing Xue

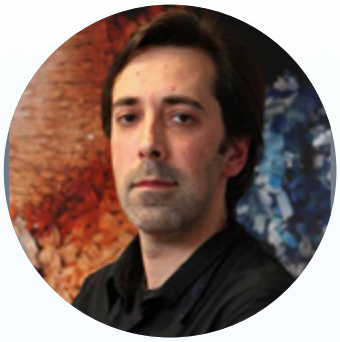
Victoria University of Wellington

Title: Genetic Programming for Automated Feature and Model Learning: From Theory to Real-World Applications

Abstract: Machine learning has emerged as a powerful tool for addressing diverse real-world challenges, with success depending critically on feature quality and model efficacy. GP, an evolutionary computation approach, offers unique and effective solutions for both feature and model learning, positioning it as a promising approach to advancing automated machine learning. This talk will discuss GP's fundamental principles and suitability for complex automated learning tasks, then delve into recent research on GP-based automated feature learning and model generation across various domains such as classification, symbolic regression, and image analysis. It will demonstrate how GP methods improve performance in accuracy, model complexity, computational efficiency, and explainability, highlighting its ability to address real-world problems in medical/healthcare, biology, aquaculture, horticulture, and agriculture. The talk will also address current challenges and opportunities to provide a comprehensive overview of GP's current state and future potential in this field.

Biography: Bing Xue is a Fellow of IEEE and a Fellow of New Zealand Engineering. She is currently a Professor of Artificial Intelligence in Te Herenga Waka—Victoria University of Wellington. She also serves as Associate Dean of the Faculty of Engineering and Computer Science, and Deputy Director of the Centre for Data Science and Artificial Intelligence.

Her research focuses mainly on AI, machine learning and evolutionary computation, particularly such as genetic programming, evolutionary machine learning, feature selection, and image analysis, and their real-world applications in aquaculture, marine science, biology, healthcare, forest, and others. She has over 500 fully refereed publications and leading several prestigious research grants, with >20,000 citations, and she is also a Clarivate Reveals Highly Cited Researcher. She is currently an AdCOM member of IEEE Computational Intelligence Society, and member of ACM SIGEVO Executive Committee. She has been organizing many international conferences, such as General Chair of PRICAI 2025, IVCNZ 2025, and EuroGP 2025, Conference Chair of IEEE CEC 2024 and EuroGP 2024, and several many other conferences. She has also served as an Associate Editor of several international journals, such as IEEE TEVC, IEEE TAI, IEEE CIM, and ACM TELO.



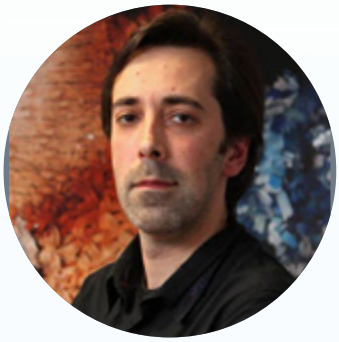
A/Prof. Penousal Machado

葡萄牙科英布拉大学

报告题目：演化模型，探索空间：进化计算是通向高效与创造力的路径

报告摘要：当前的机器学习系统面临两大挑战：其一是训练与推理所需的高能耗，另一是生成模型倾向于复现而非超越其训练数据。本次报告探讨了进化计算（EC）如何应对这两个问题。首先，EC 能够实现神经网络架构的自动设计，进而构建出不仅性能优异、而且能效更高、对大规模标注数据依赖更小的模型。其次，EC 提供了一种强大的生成空间探索方法，使我们能够跳出训练分布，生成新颖、出乎意料且具有价值的输出。这两个视角共同揭示了 EC 在推动 AI 向更高效、多样化和富有创造力方向发展中的关键作用。

专家简介：Penousal Machado，葡萄牙科英布拉大学信息工程系的副教授，认知与媒体系统研究组（CISUC）负责人。研究方向涵盖人工智能、进化计算、计算创造力和信息可视化等领域。他是欧洲及周边地区进化计算促进学会（SPECIES）的主席。在国际权威期刊和会议上发表论文 300 多篇，并荣获多项科研荣誉，包括欧洲进化计算杰出贡献奖（EvoStar Award for Outstanding Contribution to Evolutionary Computation in Europe）。曾在多个国际重量级会议上担任主旨演讲嘉宾，其作品曾在科学与艺术领域广泛展出，包括葡萄牙国家当代艺术博物馆以及纽约现代艺术博物馆（MoMA）。



A/Prof. Penousal Machado

University of Coimbra

Title: Evolving Models, Exploring Spaces: Evolutionary Computation as a Pathway to Efficiency and Creativity

Abstract: Current machine learning systems face two significant challenges: the high energy costs associated with training and inference, and the tendency of generative models to replicate rather than go beyond their training data. This talk examines how Evolutionary Computation (EC) can address both issues. First, EC enables the automated design of neural architectures, leading to models that are not only performant but also energy-efficient and less dependent on large labeled datasets. Second, EC provides a powerful approach to generative space exploration, allowing us to move beyond the training distribution and produce outputs that are novel, surprising, and valuable. Together, these perspectives position EC as a key contributor to more efficient, diverse, and creative AI.

Biography: Penousal Machado is an Associate Professor at the Department of Informatics Engineering of the University of Coimbra and coordinator of the Cognitive and Media Systems group at CISUC. His research interests include Artificial Intelligence, Evolutionary Computation, Computational Creativity, and Information Visualization. He is also the president of SPECIES – the Society for the Promotion of Evolutionary Computation in Europe and its Surroundings. He has authored over 300 peer-reviewed publications and has received several scientific distinctions, including the prestigious EvoStar Award for Outstanding Contribution to Evolutionary Computation in Europe. He has been a keynote speaker at major international conferences, and his work has been exhibited in both scientific and artistic venues, including the National Museum of Contemporary Art and the Museum of Modern Art (MoMA) in New York.

Prof. Leonardo Trujillo

墨西哥蒂华纳国立理工学院

报告题目：基于遗传规划的特征空间变换

报告摘要：遗传规划（GP）是一种进化式学习方法，在多个领域都有广泛的应用，包括计算机视觉、程序生成以及电路设计等。然而，GP 的主要应用领域之一是用于解决监督式机器学习（ML）任务，尤其是分类与回归问题。虽然 GP 能够直接生成将输入映射到输出的完整符号模型，但许多先进的方法更倾向于将 GP 用于特征构造、特征工程或特征空间变换。本次报告将讨论了 GP 实现特征空间变换的两类方法：其一是增量式方法（类似于 Boosting），通过逐步添加新特征进行训练；其二是批处理式方法，在该方法中 GP 被用来演化出完整的特征变换模型。第一类方法将讨论几何语义遗传规划（Geometric Semantic GP）；第二类方法则重点介绍 MXGP 方法系列（包括 M2GP、M3GP、M4GP 和 M5GP）。报告将对这些方法（尤其是 MXGP）进行独特的深入，以尝试刻画并理解它们对监督学习任务中特征空间表示所产生的影响。

专家简介：Leonardo Trujillo，墨西哥蒂华纳国立理工学院（Tecnológico Nacional de México / Instituto Tecnológico de Tijuana，TecNM/ITT）教授。于 2002 年获得电子工程学士学位，2004 年获得计算机科学硕士学位（均来自蒂华纳理工学院），于 2008 年在墨西哥恩塞纳达的 CICESE 研究中心获得计算机科学博士学位，目前是葡萄牙里斯本大学科学学院的计算机科学与工程研究中心（LASIGE）的外部成员。致力于跨学科研究，涵盖进化计算、机器学习、模式识别和人工智能等领域。主要研究方向集中在遗传规划，特别是基于该范式开发新的学习与搜索策略。发表 90 多篇期刊论文、60 篇会议论文、25 篇书籍章节，并主编了 7 本专著，其中包括作为系列联合主席主导的 NEO 研讨会系列以及多次组织的“遗传规划理论与实践（Genetic Programming Theory and Practice）”研讨会。担任 Springer 出版社期刊《Genetic Programming and Evolvable Machines》的主编，同时《European Journal of Artificial Intelligence》及《Mathematical and Computational Applications》期刊的编委，多个国际顶级会议（如 GECCO、CEC、PPSN、EvoStar、CVPR 和 ECCV）的常任程序委员会成员。此外，他曾担任多项国内外科研项目的负责人或联合负责人。

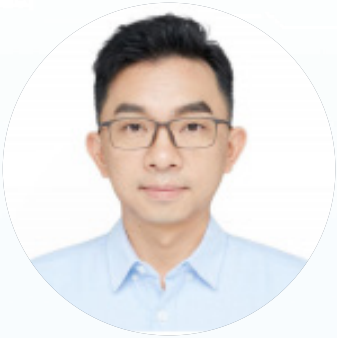
Prof. Leonardo Trujillo

Tecnológico Nacional de México / Tijuana Institute of Technology

Title: Feature Space Transformations with Genetic Programming

Abstract: Genetic Programming (GP) is an evolutionary approach to learning that has a broad range of applications, including developing computer vision methods, solving program synthesis tasks and designing electrical circuits. However, one of the main application domains for GP is to solve standard supervised machine learning (ML) tasks, namely classification and regression. While GP can produce complete symbolic models that map the inputs to the desired outputs, many state-of-the-art methods use GP for feature construction, feature engineering, or feature space transformation. In this talk, we discuss two ways to use GP to perform feature space transformation, an incremental approach (similar to boosting) where new features are added sequentially, and a batch approach where GP is used to evolve complete feature transformations models. For the former, Geometric Semantic Genetic Programming is discussed, and for the latter the MXGP (M2GP, M3GP, M4GP, M5GP) family of methods are considered. In particular, we present a unique analysis of these methods, and MXGP in particular, in an attempt to characterize and understand their effect on the feature space representation of a supervised learning task.

Biography: Leonardo Trujillo is a Professor at the Tecnológico Nacional de México / Tijuana Institute of Technology (TecNM/ITT), Mexico. He received his bachelor degree in electronic engineering in 2002 and master degree in computer science in 2004, both from the Tijuana Institute of Technology. He received the Ph.D. in Computer Science in 2008 from the Center of CICESE, Mexico. Currently, he serves as an External Member of the Computer Science and Engineering Research Center (LASIGE) at the Faculty of Sciences, University of Lisbon, Portugal. His research involves the interdisciplinary research on evolutionary computation, machine learning, pattern recognition, and artificial intelligence. His work focuses on Genetic Programming (GP) and developing new learning and search strategies based on this paradigm. He has published over 90 journal papers, 60 conference papers, 25 book chapters, and has edited seven books, including from the NEO workshop series of which he is series co-chair, and from the Genetic Programming Theory and Practice workshop which he organized on several occasions. He is currently Editor-in-Chief of the Genetic Programming and Evolvable Machines journal published by Springer and an Associate Editor of the European Journal of Artificial Intelligence (Sage) and the Mathematical and Computational Applications journal from MDPI. He is a regular PC member of top conferences, including GECCO, CEC, PPSN, EvoStar, CVPR and ECCV. He has also been PI or Co-PI for various national and international research grants.



江敏教授

厦门大学

报告题目：神经 PDE 求解器：借助演化策略从黑盒逼近走向可解释的科学工具

报告摘要：神经 PDE 求解器是模拟复杂物理系统的强大工具，但它们通常面临三个关键挑战：(1) 数据稀缺，(2) 黑箱行为导致的不透明性，(3) 多物理场耦合的困难。 本次报告将提出一套创新的进化启发策略，系统性地将这些黑箱逼近器转化为可解释且可靠的科学工具。通过借鉴进化过程的原则，我们的方法弥合了稳健逼近与明确解释之间的鸿沟。本次报告将展示这些方法如何构建准确、透明且可迁移的物理驱动 AI 框架，为更加可信和灵活的科学机器学习提供了新的发展方向

专家简介：江敏，厦门大学人工智能系教授，担任《IEEE Transactions on Evolutionary Computation》、《IEEE Transactions on Neural Networks and Learning Systems》、《IEEE Computational Intelligence Magazine》 和《IEEE Transactions on Cognitive and Developmental Systems》的副编辑。兼任 IEEE CIS 厦门分会主席，并曾在 IEEE CIS 智能系统与应用技术委员会担任领导职务。研究领域涵盖机器学习、进化优化和多物理场仿真，并广泛应用于智能制造。近五年在 NeurIPS、AAAI、IJCAI、TEVC、TCYB 和 TNNLS 等期刊和会议上发表论文近 50 篇，其中包括 5 篇 ESI 高被引论文，连续入选 2023 年和 2024 年斯坦福大学全球前 2% 科学家榜单。

Prof. Min Jiang

Xiamen University

Title: Neural PDE Solvers: From Black-Box Approximators to Transparent Scientific Tools via Evolution-Inspired Strategies

Abstract: Neural PDE solvers are powerful tools for modeling complex physical systems, yet they often face three key challenges: (1) data scarcity, (2) opaque "black-box" behavior, and (3) difficulties in multiphysics coupling. In this talk, we present a novel set of evolution-inspired strategies that systematically transform these black-box approximators into interpretable and reliable scientific tools. By leveraging principles from evolutionary processes, our approach bridges the gap between robust approximation and explicit interpretation. We demonstrate how these methods yield accurate, transparent, and transferable frameworks for physics-informed AI, offering a promising pathway toward more trustworthy and adaptable scientific machine learning.

Biography: Min Jiang is a Professor in the Department of Artificial Intelligence at Xiamen University. He serves as Associate Editor for IEEE Transactions on Evolutionary Computation, IEEE Transactions on Neural Networks and Learning Systems, IEEE Computational Intelligence Magazine, and IEEE Transactions on Cognitive and Developmental Systems. He chairs the IEEE CIS Xiamen Chapter and has held leadership roles on the IEEE CIS Technical Committee on Intelligent Systems and Applications. His research focuses on machine learning, evolutionary optimization, and multiphysics simulation with applications in intelligent manufacturing. Over the past five years, he has authored nearly 50 papers—including five ESI Highly Cited works—in venues such as NeurIPS, AAAI, IJCAI, TEVC, TCYB, and TNNLS, and was named among Stanford University's Top 2% Scientists in 2023 and 2024.

钟竞辉教授

华南理工大学

报告题目：基于预训练 Transformer 与遗传规划集成的符号回归

报告摘要：符号回归（SR）是一个 NP 难优化问题，旨在为给定数据集找到最优拟合的数学表达式，在科学发现和工程设计领域具有广泛应用。传统的遗传规划（GP）提供了一个强大的框架来探索符号表达式，但由于其依赖于随机搜索，通常会导致低效，并未能充分利用领域知识。另一方面，现代基于 Transformer 的方法在学习数据模式方面表现优异，但往往缺乏针对任务的精细优化，这对于高精度的 SR 至关重要。本次报告提出了两种新方法，以结合 GP 和 Transformer 模型的优势。第一种方法利用预训练的 Transformer 来优化 GP 的初始化和变异算子，以提升搜索效率并增强模型的可解释性。第二种方法采用 Transformer-Tree 模型，学习符号树中节点和边组件的分布特征。模型的预测输出随后被用作先验知识，以引导包括初始化和变异在内的遗传操作。研究结果表明，将预训练的 Transformer 与遗传规划相结合，能够显著提高解决符号回归问题的效率和效果。

专家简介：钟竞辉，华南理工大学计算机科学与工程学院教授、博士生导师。主要研究方向是先进智能算法的设计与实际应用。近年来，在国际知名期刊和会议上发表了 100 余篇学术论文，其中 40 余篇发表于 IEEE/ACM Transactions 系列期刊。主持了 20 多个国家、省级及行业资助的研究项目。目前担任 Memetic Computing 和 ICT Express 期刊的编委，同时是 IEEE 高级会员、中国计算机学会（CCF）高级会员，并担任 IEEE 计算智能学会（CIS）广州分会的副主席。

Prof. Jinghui Zhong

Zhong South China University of Technology

Title: Integrating Pretrained Transformers with Genetic Programming for Symbolic Regression

Abstract: Symbolic Regression (SR) is an NP-hard optimization problem dedicated to identifying the best-fitting mathematical expressions for a given dataset, with broad applications in scientific discovery and engineering design. While traditional Genetic Programming (GP) provides a robust framework for exploring symbolic expressions, its reliance on stochastic search often leads to inefficiencies and fails to leverage domain knowledge effectively. Conversely, while modern Transformer-based approaches excel at learning data patterns, they often lack the task-specific refinement crucial for high-precision SR. This study introduces two new approaches to combine the strengths of GP and Transformer models. The first method leverages a pretrained Transformer to optimize GP's initialization and mutation operators, aiming to improve search efficiency and enhance model interpretability. The second approach employs a Transformer-Tree model to learn the distribution characteristics of node and edge components in symbolic trees. The model's predicted outputs are subsequently utilized as prior knowledge to guide genetic operations, including initialization and mutation. Our findings demonstrate that the integration of Pretrained Transformers with genetic programming substantially boosts the efficiency and effectiveness of solving symbolic regression problems.

Biography: Dr. Jinghui Zhong is a Professor and Doctoral Supervisor at the School of Computer Science and Engineering, South China University of Technology (SCUT). His primary research focuses on the design and practical application of advanced intelligent algorithms. In recent years, he has published over 100 academic papers in internationally renowned journals and conferences, including more than 40 papers in IEEE/ACM Transactions series journals. He has led over 20 national, provincial, and industry-sponsored research projects. Dr. Zhong currently serves as an Editorial Board Member for Memetic Computing and ICT Express, a Senior Member of IEEE, a Senior Member of the China Computer Federation (CCF), and Vice Chair of the IEEE Computational Intelligence Society (CIS) Guangzhou Chapter.

胡婷副教授

加拿大金斯敦皇后大学

报告题目：中立性如何塑造进化：简单性偏倚和搜索

报告摘要：中立性，其特征是在基因型空间中的路径不会改变表型或适应度，使得进化搜索可以进行广泛的探索。简单性偏倚描述了进化系统倾向于支持低复杂度解的倾向。我们基于布尔线性遗传规划框架，研究中立性如何促进进化系统中的简单性偏倚。我们引入两个利用解的对称性来促进中立的适应度函数，分析其对中性网络连通性和搜索动态的影响。结果表明，更简单的表型，其 Kolmogorov 复杂性较低，表现出更大的冗余和连通性，使它们在中性探索中更容易被访问。此外，所提出的适应度函数通过扩展中立路径，显著提高了搜索成功率，特别是对于复杂的目标表型。这些发现揭示了中立性在塑造简单性偏倚中的作用，并为提高进化算法的有效性提供了实用的见解。

专家简介：胡婷，加拿大金斯敦皇后大学计算学院副教授。研究方向为进化计算、可解释的 AI 和机器学习在生物医学中的应用。担任《Genetic Programming and Evolvable Machines》期刊的高级编委以及《Neurocomputing》期刊的编委，曾多次担任著名进化计算会议的程序联合主席，包括 ACM 遗传和进化计算会议（GECCO）和欧洲遗传编程会议（EuroGP）等。

A/Prof. Ting Hu

Queen's University in Kingston

Title: How Neutrality Shapes Evolution: Simplicity Bias and Search

Abstract: Neutrality, characterized by pathways in the genotype space that do not alter the phenotype or fitness, enables a broad exploration of evolutionary search. Simplicity bias describes the tendency of evolutionary systems to favor low-complexity solutions. We investigate how neutrality contributes to simplicity bias in evolutionary systems using a Boolean Linear Genetic Programming framework. We introduce two fitness functions that utilize symmetry in solutions to promote neutrality, to analyze their effects on neutral network connectivity and search dynamics. Our results demonstrate that simpler phenotypes, characterized by lower Kolmogorov complexity, exhibit greater redundancy and connectivity, making them more accessible during neutral exploration. In addition, the proposed fitness functions significantly improve search success rates, especially for complex target phenotypes, by expanding neutral pathways. These findings shed light on the role of neutrality in shaping simplicity bias and provide practical insights to improve the effectiveness of evolutionary algorithms.

Biography: Ting Hu is an Associate Professor at the School of Computing, Queen's University in Kingston, Canada. Her research focuses on evolutionary computing, explainable AI and machine learning applications in biomedicine. Ting serves as senior Special Communications Editor of the journal Genetic Programming and Evolvable Machines, as well as an Associate Editor of the journal Neurocomputing. She has served on multiple occasions as the program co-chair for prominent evolutionary computing conferences such as the ACM Genetic and Evolutionary Computation Conference (GECCO) and the European Conference on Genetic Programming (EuroGP).

钱超教授

南京大学

报告题目：演化学习：从理论到实践

报告摘要：黑箱优化指缺乏形式化问题定义时如何求取最优解，在工业制造和自然科学领域应用非常广泛。除黑箱外，这类问题还往往带有多目标、大规模、昂贵评估等复杂特征，导致求解非常困难。受达尔文进化论启发产生的演化算法适于求解黑箱优化，但效率偏低，且理论基础薄弱。演化学习试图通过结合演化算法和机器学习以更好的解决黑箱优化问题。本次报告将介绍我们为建立演化学习理论基础所做的系列工作，以及在理论结果指导下设计的算法如何帮助解决“卡脖子问题”—芯片布局以及探索自然科学基本问题—生命起源与演化。

专家简介：钱超，南京大学人工智能学院教授、院长助理。长期从事人工智能中演化学习基础理论研究，以第一 / 通讯作者在人工智能 / 理论国际一流期刊和会议上发表 70 余篇论文，出版专著《Evolutionary Learning》，获 ACM GECCO’11 最佳理论论文奖，受邀担任 IEEE 计算智能学会“演化算法理论分析”工作组主席，获 CCF-IEEE CS 青年科学家奖。理论指导下设计的算法应用于自然科学基础问题（如生命起源与演化等），成果以共同一作发表于美国国家科学院院刊 PNAS；应用于芯片布局，获 ACM SIGEVO Human Competitive Award、EDA 领域顶级国际会议 DATE’25 最佳论文奖；部分成果已在华为落地应用，包括芯片布局、芯片寄存器寻优、光学镜头姿态测校、无线网络优化、工厂排产等任务，获 3 次华为“难题揭榜”火花奖。担任人工智能 / 演化计算权威国际期刊 AIJ、ECJ、IEEE TEC、IEEE CIM 等编委，在国际人工智能联合大会 IJCAI’22 作 Early Career Spotlight 报告，并担任第 22 届亚太人工智能国际会议 PRICAI’25 程序委员会主席。获国家优青（2020），主持科技创新 2030“新一代人工智能”重大项目（青年科学家）。指导学生获国自然本科生和博士生项目，执教《启发式搜索与演化算法》被研究生选为“我心目中的好课程”，获南京大学“师德先进”青年教师奖。

Prof. Chao Qian

Nanjing University

Title: Evolutionary Learning: From Theory to Practice

Abstract: Black-box optimization refers to the process of finding the optimal solution without a formalized problem definition and is widely applied in industrial manufacturing and natural sciences. Beyond the black-box nature, these problems often exhibit complex characteristics such as multi-objective requirements, large-scale data, and expensive evaluations, making them particularly challenging to solve. Evolutionary algorithms, inspired by Darwinian evolution theory, are well-suited for tackling black-box optimization but tend to suffer from low efficiency and weak theoretical foundations. Evolutionary learning aims to integrate evolutionary algorithms with machine learning to better address black-box optimization problems. This talk will introduce our series of efforts in establishing the theoretical foundation of evolutionary learning and illustrate how algorithms designed based on theoretical insights can help resolve critical bottleneck problems—such as chip layout—and explore fundamental questions in natural sciences, including the origin and evolution of life.

Biography: Qian Chao is a Professor and Assistant Dean at the School of Artificial Intelligence, Nanjing University. He has long been engaged in the fundamental theoretical research of evolutionary learning in artificial intelligence. As the first author and/or the corresponding author, he has published more than 70 papers in top-tier international journals and conferences in AI and theoretical research. He is the author of the monograph Evolutionary Learning and has won the Best Theory Paper Award at ACM GECCO’11. He was invited to serve as the chair of the IEEE Computational Intelligence Society's working group on “Theoretical Analysis of Evolutionary Algorithms” and has received the CCF-IEEE CS Young Scientist Award.

Algorithms designed based on theoretical guidance have been applied to fundamental problems in natural sciences, such as the origin and evolution of life, with results published in PNAS as a co-first author. His work on chip layout optimization has earned the ACM SIGEVO Human Competitive Award and the Best Paper Award at DATE’25, a top international conference in the EDA field. Some of his research has been successfully implemented at Huawei, including applications in chip layout, chip register optimization, optical lens pose calibration, wireless network optimization, and factory scheduling, earning three Huawei “Tough Problem Challenge” Spark Awards.

He serves as an editorial board member for leading AI and evolutionary computation journals, including AIJ, ECJ, IEEE TEC, and IEEE CIM. He was invited to deliver an Early Career Spotlight talk at IJCAI’22 and serves as the program committee chair for the 22nd Pacific Rim International Conference on Artificial Intelligence (PRICAI’25). He received the National Science Fund for Distinguished Young Scholars (2020) and leads a major project under the Science and Technology Innovation 2030 “New Generation Artificial Intelligence” initiative (Young Scientist). His students have won National Natural Science Foundation undergraduate and doctoral research projects. His course Heuristic Search and Evolutionary Algorithms was selected by graduate students as one of the “Favorite Courses” and earned him the Young Teacher Award for Excellence in Teaching Ethics at Nanjing University.

袁源教授

北京航空航天大学

报告题目：基于大模型的程序和测试用例协同演化方法

报告摘要：随着大模型（LLM）在代码生成与自动化测试中的广泛应用，如何在无预定义测试用例的情况下生成正确程序成为关键问题。为此，报告提出了 CoCoEvo 框架，通过协同演化策略同时优化程序与测试用例。该方法以 LLM 为核心，同时迭代演化程序和测试用例种群，并结合多目标筛选策略，从通过率、置信度和判别力等维度综合评估，实现程序与测试用例的闭环优化。实验表明，CoCoEvo 可适配 GPT-4o-mini、Qwen2.5-Coder-32B、Llama-3.1-70B 和 DeepSeek-V3 等多种主流模型，并在 LeetCode-Contest 等数据集上取得一致的性能增益，为大模型驱动的代码生成与测试提供了新路径。

专家简介：袁源，北京航空航天大学教授，博士生导师，入选国家高层次青年人才计划。研究领域包括计算智能、智能软件工程、多目标优化等。迄今为止，在 AIJ、IEEE TEVC、IEEE TSE、ACM TOSEM、AAAI 等国际高水平学术期刊和会议发表论文 50 余篇，4 篇论文入选 ESI 高被引论文，1 篇论文入选中国百篇最具影响国际学术论文。曾主持或参与国家自然科学基金面上 / 青年项目、工信部高质量发展专项、科技部重点研发计划项目等，获得中国物流与采购联合会科技发明一等奖 1 项、中国仿真学会自然科学奖二等奖 1 项。目前担任 IEEE TEVC、IEEE TETCI 等权威国际期刊编委。

Prof. Yuan Yuan

Beihang University

Title: Co-Evolutionary Approach to Program and Test Case Generation with Large Language Models

Abstract: With the widespread application of large language models (LLMs) in code generation and automated testing, a key challenge arises: how to generate correct programs in the absence of predefined test cases. To address this, this talk proposes CoCoEvo, a framework that employs a co-evolutionary strategy to simultaneously optimize programs and test cases. Centered around LLMs, the method iteratively evolves populations of both programs and tests, incorporating a multi-objective selection strategy that evaluates solutions based on metrics such as pass rate, confidence, and discriminatory power. Experiments demonstrate that CoCoEvo is compatible with several mainstream models, including GPT-4o-mini, Qwen2.5-Coder-32B, Llama-3.1-70B, and DeepSeek-V3. It consistently achieves performance gains on datasets such as LeetCode-Contest, offering a novel path for LLM-driven code generation and testing.

Biography: Yuan Yuan is a Professor and PhD Supervisor at Beihang University. He is selected into the National Young Talents Program. His research interests include computational intelligence, intelligent software engineering, and multi-objective optimization. To date, he has published over 50 papers in top-tier international journals and conferences, such as AIJ, IEEE TEVC, IEEE TSE, ACM TOSEM, and AAAI. Four of his papers have been selected as ESI Highly Cited Papers, and one has been recognized among China's Top 100 Most Influential International Academic Papers.

He has led or participated in various national research projects, including the National Natural Science Foundation of China (NSFC) general and youth programs, the Ministry of Industry and Information Technology's high-quality development initiatives, and key R&D programs supported by the Ministry of Science and Technology. He has received several honors, including First Prize for Technological Invention from the China Federation of Logistics & Purchasing, and Second Prize for Natural Science from the Chinese Association for System Simulation. He currently serves as an editorial board member of prestigious international journals including IEEE TEVC and IEEE TETCI.

孙亚楠教授

四川大学

报告题目：进化神经架构搜索在多类别分类中的运行时分析

报告摘要：进化神经架构搜索（ENAS）是进化机器学习的重要组成部分，通常使用进化算法（EA）自动设计高性能深度神经架构。近年来，各种 ENAS 方法已被提出，并表现出卓越的性能。然而，ENAS 的理论研究仍处于初期阶段。本报告展示了 ENAS 在多类别分类问题上的运行时分析，这是 EA 理论研究的一个关键方面。具体而言，我们首先提出了一个基准，以奠定分析的基础。此外，设计了一个两级搜索空间，使其适用于多类别分类问题，并与 ENAS 的常规设置保持一致。基于这些设计，研究了使用单比特突变和比特级突变的 (1+1)-ENAS 算法，并分析其预期运行时间的上下界。我们证明，使用两种突变的算法可以在预期运行时间上界为，下界为的情况下找到最优解。这一结果表明，简单的单比特突变值得重点考虑，因为大多数最先进的 ENAS 方法通常采用复杂的比特级突变设计。实证研究也支持我们的理论证明。

专家简介：孙亚楠，四川大学计算机学院教授、博导；国家青年人才计划入选者，教育部机器学习与工业智能应用工程中心副主任；IEEE Transaction on Evolutionary Computation 副主编，IEEE Transaction on Neural Networks and Learning Systems 副主编。研究方向是神经网络、进化计算及其在神经架构搜索方面的应用，近五年以第一 / 通讯作者在 TEVC、TNNLS、TCYB 等 IEEE 汇刊和 ICML、CVPR、NeurIPS、ICCV 等 CCF-A 类会议发表论文 40 余篇，其中 8 篇入选 ESI 高被引论文和 ESI 热点论文，4 篇入选 IEEE 计算智能学会研究前沿论文，2 篇获得国际会议 Best/Spotlight Paper，出版中英文专著共 2 部。

Prof. Yanan Sun

Sichuan University

Title: Runtime Analysis of Evolutionary NAS for Multiclass Classification

Abstract: Evolutionary neural architecture search (ENAS) is a key part of evolutionary machine learning, which commonly utilizes evolutionary algorithms (EAs) to automatically design high-performing deep neural architectures. During past years, various ENAS methods have been proposed with exceptional performance. However, the theory research of ENAS is still in the infant. In this work, we step for the runtime analysis, which is an essential theory aspect of EAs, of ENAS upon multiclass classification problems. Specifically, we first propose a benchmark to lay the groundwork for the analysis. Furthermore, we design a two-level search space, making it suitable for multiclass classification problems and consistent with the common settings of ENAS. Based on both designs, we consider (1+1)-ENAS algorithms with one-bit and bit-wise mutations, and analyze their upper and lower bounds on the expected runtime. We prove that the algorithm using both mutations can find the optimum with the expected runtime upper bound and lower bound. This suggests that a simple one-bit mutation may be greatly considered, given that most state-of-the-art ENAS methods are laboriously designed with the bit-wise mutation. Empirical studies also support our theoretical proof

Biography: Sun Yanan is a Professor and PhD Supervisor at the School of Computer Science, Sichuan University. He is selected into the National Young Talents Program and serves as the Deputy Director of the Ministry of Education's Machine Learning and Industrial Intelligence Application Engineering Center. He is an Associate Editor of IEEE Transaction on Evolutionary Computation and IEEE Transaction on Neural Networks and Learning Systems.

His research focuses on neural networks, evolutionary computation, and their applications in neural architecture search. Over the past five years, he has published more than 40 papers as the first or corresponding author in IEEE journals such as TEVC, TNNLS, TCYB, and in top-tier conferences including ICML, CVPR, NeurIPS, and ICCV (recognized as CCF-A conferences). Among these publications, eight papers were selected as ESI Highly Cited Papers and ESI Hot Papers, four were included in the IEEE Computational Intelligence Society's Research Frontier Papers, and two won Best/Spotlight Paper awards at international conferences. Additionally, he has authored two books in both Chinese and English.

陆苗研究员

中国农业科学院

报告题目：遗传规划在农业遥感中的创新应用研究

报告摘要：农业遥感领域长期面临集约化农田提取难、作物时序分类依赖人工特征、早期作物制图数据有限等重大挑战。本研究开创性地将遗传规划（Genetic Programming, GP）系统引入农业遥感领域，首次构建了覆盖农田提取到作物分类的解决方案，实现了从特征自动构建到分类决策的一体化突破。通过动态扩展的树结构设计，GP 自主挖掘光谱 - 时序 - 空间多维特征。针对小农户农田形状不规则、光谱特征复杂的特点，提出的面向对象的 GP 方法提取农田的精度显著优于传统分类器；在作物时序分类任务中，GP 通过动态生成高维特征，克服了传统方法依赖专家经验选取有效特征的局限；针对早期作物制图数据有限的挑战，开发的 GP 定制化特征构建方法能够有效捕捉作物光谱差异，使分类精度显著提升。这一系列研究不仅验证了 GP 在特征自动学习和可解释性方面的独特优势，更标志着农业遥感从经验驱动向算法驱动的范式转变，为农业遥感提供了稳定、精准的智能解决方案，展现了在精准农业管理中的广阔应用前景。

专家简介：陆苗，中国农业科学院研究员，博士生导师，主要研究基于遥感数据的耕地智能化监测，基于遗传规划等人工智能方法，开展作物类型信息提取，耕地规模化利用分析，耕地盐渍化监测等工作。主持国家自然科学基金项目 2 项，中国农业科学院科技创新工程 1 项，国家农业重大科技项目 1 项，参与国家重点研发计划、国家自然科学基金重点项目等 5 项。获中国地理信息科技进步一等奖 1 项，中国农业绿色发展研究会科学技术奖 1 项，中国农业科学院青年科技创新奖 1 项，以第一作者和通讯作者身份发表论文 30 余篇，申请发明专利 4 项，著作出版 1 项。

Prof. Miao Lu

Chinese Academy of Agricultural Sciences

Title: Innovative Applications of Genetic Programming in Agricultural Remote Sensing

Abstract: The field of agricultural remote sensing has faced major challenges, such as the difficulty of extracting intensive farmland patterns, reliance on handcrafted features for crop time-series classification, and limited early-season crop mapping data. This study pioneers the integration of Genetic Programming (GP) into agricultural remote sensing, proposing—for the first time—a complete solution that spans from farmland extraction to crop classification, achieving an end-to-end breakthrough in both automated feature construction and decision-making. Through a dynamically expandable tree structure design, GP autonomously mines spectral, temporal, and spatial multi-dimensional features. Addressing the irregular shapes and complex spectral characteristics of smallholder farmland, the proposed object-based GP method significantly outperforms traditional classifiers in extraction accuracy. For crop time-series classification tasks, GP dynamically generates high-dimensional features, overcoming the traditional reliance on expert knowledge to select effective descriptors. In tackling the challenge of sparse data during early-season crop mapping, a customized GP-based feature construction approach is developed to effectively capture spectral differences between crop types, resulting in markedly improved classification performance. This series of innovations not only demonstrates GP's unique strengths in automatic feature learning and interpretability, but also signals a paradigm shift in agricultural remote sensing—from experience-driven to algorithm-driven approaches. It provides a robust, accurate, and intelligent solution, showcasing its promising potential in precision agriculture management.

Biography: Lu Miao is a Research Fellow and PhD Supervisor of Chinese Academy of Agricultural Sciences (CAAS). Her research focuses on the intelligent monitoring of cultivated land using remote sensing data. Leveraging genetic programming and other artificial intelligence techniques, she conducts research in crop type information extraction, large-scale farmland utilization analysis, and salinization monitoring of arable land. She has led two projects funded by the National Natural Science Foundation of China (NSFC), one project under the Chinese Academy of Agricultural Sciences'Scientific Innovation Program, and one National Major Agricultural Science and Technology Project. In addition, she has participated in five key national research initiatives, including the National Key R&D Program and NSFC major projects. Her achievements have been recognized with the First Prize of the China Geographic Information Science and Technology Progress Award, the Science and Technology Award from the China Society for Green Agriculture Development, and the Youth Science and Technology Innovation Award from the Chinese Academy of Agricultural Sciences. She has published over 30 papers as first or corresponding author, applied for 4 invention patents, and authored 1 monograph.

贾亚晖副教授

华南理工大学

报告题目：贪心是好的？！

报告摘要：随着人工智能的进步，大量的工作被人工智能所取代，甚至连人工智能算法也都开始被人工智能所设计。本报告逆潮流而为，以最简单的人类求解问题的思想，即贪心思想作为出发点，从进化学习方法设计、神经组合优化方法设计、进化优化方法设计三个方面出发，以路径规划问题为应用背景，探讨简单的专家知识如何从建模和求解两方面提升计算智能方法的求解速率和泛化能力。研究发现，将简单的专家知识融入复杂的计算智能方法中仍然是短时间提升其性能的有效方法。

专家简介：贾亚晖，华南理工大学未来技术学院副教授、博导，博士毕业于中山大学。研究方向包含进化计算、强化学习、组合优化和大规模优化。已发表论文 30 余篇，其中 IEEE Trans 期刊 16 篇。担任 Journal of Renewable and Sustainable Energy 副编辑。主持和参与国家级项目 4 项，省部级项目 3 项，是广东省珠江创新创业引进团队成员。

A/Prof. Yahui Jia

South China University of Technology

Title: Greedy is Good ?!

Abstract: With the advancement of artificial intelligence, many jobs are being replaced by AI, and even AI algorithms are starting to be designed by AI. Contrary to the trend, this talk takes the simplest human problem-solving idea, namely the greedy idea, as the starting point. Starting from three aspects: the design of evolutionary learning methods, the design of neural combinatorial optimization methods, and the design of evolutionary optimization methods, with the routing problem as the application background, we explore how simple expert knowledge can improve the solution rate and generalization ability of computational intelligence methods from both the modeling and solution aspects. Our research findings show that integrating simple expert knowledge into complex computational intelligence methods remains an effective way to improve their performance in a short time.

Biography: Yahui Jia, Associate Professor, PhD Supervisor at the School of Future Technology, South China University of Technology. He obtained his Ph.D. degree from Sun Yat-sen University. His research interests include evolutionary computation, reinforcement learning, combinatorial optimization, and large-scale optimization. He has published over 30 papers, including 16 IEEE Transactions journal papers. He serves as an Associate Editor for the Journal of Renewable and Sustainable Energy. He has led or participated in 4 national-level research projects and 3 provincial/ministerial-level projects. Additionally, he is a member of the Pearl River Talent Innovation and Entrepreneurship Team in Guangdong Province.

陆智超 助理教授

香港城市大学

报告题目：基于大语言模型的自动化算法设计

报告摘要：算法设计（AD）在各个领域的高效问题解决中至关重要。 大型语言模型（LLMs）的出现极大地促进了该领域的自动化和创新，提供了新的视角和有前景的解决方案。 在过去一年中，LLMs 在 AD 的集成方面取得了重大进展，广泛应用于优化、机器学习、数学推理和科学发现。本次报告将概述 LLM-for-AD 的最新进展，并展示典型的基于 LLM 的自动化 AD 方法，同时还将演示一个旨在推动该领域研究的平台。

专家简介：陆智超博士现任香港城市大学计算机科学系助理教授。于 2020 年获得密歇根州立大学电气与计算机工程博士学位。 在人工智能的广泛背景下，陆博士的研究侧重于进化计算、学习和优化的交叉领域，尤其是致力于开发高效且值得信赖的机器学习 / 深度学习算法和系统，以实现人工智能普惠化这一宏伟目标。 在过去五年中，他的研究成果已在顶级会议和权威期刊上发表 40 余篇高质量论文，获得 IEEE-CCF 和 GECCO 2019 最佳论文奖等荣誉。

A/Prof. Zhichao Lu

City University of Hong Kong

Title: Automated Algorithm Design with Large Language Models

Abstract: Algorithm Design (AD) is essential for effective problem-solving across various domains. The emergence of Large Language Models (LLMs) has significantly enhanced automation and innovation in this field, offering fresh perspectives and promising solutions. Over the past year, integrating LLMs into AD has made substantial progress, with applications in optimization, machine learning, mathematical reasoning, and scientific discovery. This talk will provide an overview of recent advancements in LLM-for-AD and showcase representative LLM-based automated AD methods. We will also demonstrate a platform designed to facilitate research in this area.

Biography: Zhichao Lu is currently an Assistant Professor in Department of Computer Science at City University of Hong Kong. He received Ph.D degree in Electrical and Computer Engineering from Michigan State University in 2020. In the broad context of AI, the Dr. Lu's research focuses on the intersections of evolutionary computation, learning, and optimization, notably on developing efficient and trustworthy ML/DL algorithms and systems, with the overarching goal of making AI accessible to everyone. Over the past five years, his research endeavors have yielded over 40 high-quality papers published in premier conferences and prestigious journals, which are advancing and continuously impacting the related fields, as evidenced by a couple of Best Paper Awards (from IEEE-CCF and GECCO 2019) and the growing citations.

Erik Hemberg 博士

美国麻省理工学院

报告题目：基于协同进化的自编码器训练方法

报告摘要：在自编码器（AE）训练过程中，进化算法通过种群机制引入多样性。我们采用了一种基于空间拓扑结构的协同共进化算法，以增强 AE 训练的鲁棒性。此外，还探索了一种基于进化计算的神经网络剪枝新方法，重点在于同时对自编码器的编码器和解码器进行剪枝。该方法通过分析各层的激活值来引导权重剪枝。研究结果表明，该方法能够发现更高效的自编码器结构，同时其性能与传统训练方法下的模型相当。

专家简介：Erik Hemberg 博士是美国麻省理工学院（MIT）计算机科学与人工智能实验室（CSAIL）ALFA 研究组的研究员。博士毕业于爱尔兰都柏林大学学院（University College Dublin）计算机科学，硕士毕业于瑞典查尔姆斯理工大学（Chalmers University of Technology）工业工程与管理学。研究兴趣涵盖进化计算、人工智能、机器学习和数据科学，其应用方向包括程序综合、税收合规、学习系统以及神经科学等领域。目已发表多篇研究论文并获得多次论文奖励。

Dr. Erik Hemberg

Massachusetts Institute of Technology

Title: Training Autoencoders with Cooperative Coevolution

Abstract: Evolutionary algorithms introduce diversity during AE training through the use of AE populations. We employ a cooperative coevolutionary algorithm that uses a spatial topology to enhance the robustness of AE training. We also explore a novel approach to neural network pruning using evolutionary computation, focusing on simultaneously pruning the encoder and decoder of an autoencoder. We use layer activations to guide weight pruning. Our findings reveal that our method can find more efficient autoencoders with comparable performance to canonically trained models.

Biography: Dr. Erik Hemberg is a Research Fellow at the ALFA Group in the MIT Computer Science and Artificial Intelligence Laboratory, USA. He received his Ph.D. in Computer Science from University College Dublin, Ireland, and an M.Sc. in Industrial Engineering and Management from Chalmers University of Technology, Sweden. His research interests include evolutionary computation, artificial intelligence, machine learning, and data science, with applications in program synthesis, tax regulation compliance, learning systems, and neuroscience. He has many publications in these fields and received multiple best paper awards.

会议酒店信息
Accommodation

华智酒店 Huazhi Hotel

商务大床房
Business queen room

商务标准间
Business standard room

商务大床房（单早）350

商务标准间（双早）380

华智酒店销售经理李广喜：15617912750

Business King Room (single occupancy with 1 breakfast): ¥350/night

Business Twin Room (double occupancy with 2 breakfasts): ¥380/night

Sales Manager: Li Guangxi

Contact: +86 156 1791 2750

交　　通

新郑机场

出租车：全程约 55 公里，车程约 1 小时。在新郑机场 T2 航站楼网约车上客区上车，可直达。

地铁：从新郑机场站 B 口进站，乘城郊线到南四环站，换乘 2 号线到紫荆山站，再换乘 1 号线到郑州大学站，B 口出站向西走 100 米即到。耗时约 2 小时。

郑州东站

出租车：全程约 28 公里，车程约 40 分钟。在郑州东站出租车／网约车上客区上车即可。

地铁：从郑州东站进站，乘坐 8 号线到郑州大学站，E 口出站直走 30 米。耗时约 46 分钟。

郑州站

出租车：全程约 16 公里，车程约 30 分钟。在郑州站西广场地面停车场上车前往。

地铁：从郑州火车站 B 口进站，坐 1 号线到郑州大学站，E 口出站直走 30 米。耗时约 40 分钟。

Transportation Guide

From Zhengzhou Xinzheng International Airport

Taxi:

Distance: ~55 km

Duration: ~1 hour

Boarding: Ride-hailing pickup area at T2 Terminal

Metro:

Enter at Xinzheng Airport Station (Exit B)

Take Suburban Line to Nansihuan Station

Transfer to Line 2 → Zijingshan Station

Transfer to Line 1 → Zhengzhou University Station (Exit B)

Walk 100m west to venue

Total duration: ~2 hours

From Zhengzhou East Railway Station

Taxi:

Distance: ~28 km

Duration: ~40 minutes

Boarding: Taxi/Ride-hailing pickup area

Metro:

Enter at Zhengzhou East Station

Take Line 8 → Zhengzhou University Station (Exit E)

Walk 30m straight to venue

Total duration: ~46 minutes

From Zhengzhou Railway Station

Taxi:

Distance: ~16 km

Duration: ~30 minutes

Boarding: West Square ground parking area

Metro:

Enter at Zhengzhou Station (Exit B)

Take Line 1 → Zhengzhou University Station (Exit E)

Walk 30m straight to venue

Total duration: ~40 minutes

组织单位简介
About the Organizers

IEEE 计算智能学会

IEEE 计算智能学会（CIS）致力于推动计算智能技术的理论研究、设计开发、应用实践与技术演进。其核心领域包括神经网络、模糊系统、进化计算，以及受自然启发的混合智能系统。CIS 积极支持前沿研究，促进跨学科协作，旨在解决复杂的现实世界问题。

IEEE Computation Intelligence Society

The IEEE Computational Intelligence Society (CIS) promotes the theory, design, application, and development of computational intelligence technologies. Its core areas include neural networks, fuzzy systems, evolutionary computation, and hybrid intelligent systems inspired by nature. CIS supports cutting-edge research and fosters collaboration across disciplines to address complex real-world problems.

郑州大学电气与信息工程学院

郑州大学电气与信息工程学院目前设有自动化系、通信工程系、电气工程系、电子信息工程系、生物医学工程系、电工电子实验中心，拥有自动化、通信工程、电气工程及其自动化、电子信息工程、生物医学工程、轨道交通信号与控制 6 个本科专业，现有全日制普通本科生 3100 余人。学院面向全国招生，其中自动化专业、通信工程专业、电气工程及其自动化专业、电子信息工程专业为国家级一流专业建设点：自动化专业通过了国家工程教育认证，是河南省特色专业、河南省专业综合改革试点专业：通信工程专业通过了国家工程教育认证，是国家特色专业、河南省本科工程教育人才培养模式改革试点专业。学院现有控制科学与工程、信息与通信工程、电气工程 3 个一级学科博士学位授权点，控制科学与工程、信息与通信工程、电气工程 3 个博士后科研流动站，控制科学与工程、信息与通信工程、电气工程、电子科学与技术 4 个学科均为河南省一级重点学科，现有在校研究生 1000 余人。

学院现建有科技部电子材料与系统国际联合研究中心，设有河南省激光与光电信息技术重点实验室、河南省脑科学与脑机接口技术重点实验室、河南省智能充电技术重点实验室（联合）、河南省电磁检测工程技术研究中心、河南省输配电装备与电气绝缘工程技术研究中心、河南省电力电子与电能系统工程技术研究中心、河南省数字组工工程技术研究中心、河南省智能电力装备与系统控制工程研究中心、河南省机器人感知与控制工程研究中心、河南省优化与智能控制技术工程研究中心、河南省锂电池安全防护

技术及装备工程研究中心、河南省电子材料与系统国际联合实验室、河南省智能网络和数据分析国际联合实验室、电网储能与电池应用河南省高等学校学科创新引智基地、高电压与放电河南省高等学校学科创新引智基地等 18 个省级科研平台及河南省电工电子实验示范教学中心。近年来，学院承担国家重点研发计划项目、国家自然科学基金等国家级项目 120 余项，省部级项目 150 余项，企业横向委托项目 240 余项。

学院现有教工 228 人，其中教授 42 人、副教授（高级实验师）67 人；拥有中国科学院院士（兼）、中国工程院院士（兼）、国家级教学名师、国家高层次领军人才、国家优青、国家“万人计划”青年拔尖人才、国家海外优青等知名教授。学院有自动控制国家级教学团队、国家级精品资源共享课程、国家级双语教学示范课程、国家级研究生思政课程，曾获国家教学成果二等奖、河南省教学成果特等奖等。学院秉持求是担当，立足河南，面向全国，切实发挥文化引领、人才支撑、科技创新作用，为实现中原崛起与中华民族伟大复兴做出新的更大的贡献。

School of Electrical and Information Engineering, Zhengzhou University

The School of Electrical and Information Engineering in Zhengzhou University currently consists of six departments and centers: the Department of Automation, Department of Communication Engineering, Department of Electrical Engineering, Department of Electronic Information Engineering, Department of Biomedical Engineering, and the Electrical and Electronic Experiment Center. It offers six undergraduate programs: Automation, Communication Engineering, Electrical Engineering and Automation, Electronic Information Engineering, Biomedical Engineering, and Rail Transit Signal and Control, with over 3,100 full-time undergraduate students enrolled.

The school recruits students nationwide. Among its majors, Automation, Communication Engineering, Electrical Engineering and Automation, and Electronic Information Engineering have been recognized as the National First-Class Undergraduate majors. The Automation major is accredited by the National Engineering Education Accreditation and has been designated as a Henan Province Featured Major and a Pilot Major for Comprehensive Reform. The Communication Engineering major is also nationally accredited and is recognized as both a National Featured Major and a Provincial Pilot Major for Engineering Education Reform.

The school holds doctoral degree-granting rights in three primary disciplines: Control Science and Engineering, Information and Communication Engineering, and Electrical Engineering. Corresponding postdoctoral research stations have also been established in these three fields. Additionally, Control Science and Engineering, Information and Communication Engineering, Electrical Engineering, and Electronic Science and Technology have all been designated as Key First-Level Disciplines of Henan Province, with more than 1,000 postgraduate students currently enrolled.

The school hosts numerous research platforms, including the International Joint Research Center for Electronic Materials and Systems recognized by the Ministry of Science and Technology. Other key laboratories and engineering research centers at the provincial level

include: Henan Key Laboratory of Laser and Optoelectronic Information Technology, Henan Key Laboratory of Brain Science and Brain-Computer Interface Technology, Henan Key Laboratory of Intelligent Charging Technology (Joint), Henan Engineering Research Center for Electromagnetic Testing, Henan Engineering Research Center for Power Transmission and Electrical Insulation Equipment, Henan Engineering Research Center for Power Electronics and Power Systems, Henan Engineering Research Center for Digital Organization Work, Henan Engineering Research Center for Intelligent Power Equipment and System Control, Henan Engineering Research Center for Robot Perception and Control, Henan Engineering Research Center for Optimization and Intelligent Control Technology, Henan Engineering Research Center for Lithium Battery Safety and Protection Technology and Equipment, Henan International Joint Laboratory for Electronic Materials and Systems, Henan International Joint Laboratory for Intelligent Networks and Data Analytics, Provincial-level “Double First-Class” Innovation Bases for Grid Energy Storage and Battery Applications, and High Voltage and Discharge Research

The school also operates the Henan Province Experimental Teaching Demonstration Center for Electrical and Electronic Engineering. In recent years, the school has undertaken more than 120 national-level projects, including the National Key R&D Programs and projects funded by the National Natural Science Foundation of China (NSFC), along with 150+ provincial and ministerial projects and over 240 enterprise-sponsored projects.

The faculty includes 228 staff members, of whom 42 are full professors and 67 are associate professors (or senior laboratory engineers). The school counts among its ranks academicians from the Chinese Academy of Sciences and Chinese Academy of Engineering (part-time), national distinguished teaching scholars, national high-level talents, recipients of national young talent programs, and other renowned experts.

It boasts a national-level teaching team in automatic control, several national-level exemplary courses (including bilingual and ideological-political education for graduate students), and has received accolades such as the Second Prize of the National Teaching Achievement Award and the Special Prize of the Henan Provincial Teaching Achievement Award.

Upholding the values of truth-seeking and responsibility, the school is rooted in Henan while serving the whole country, playing a leading role in cultural development, talent cultivation, and technological innovation, and contributing to the revitalization of central China and the great rejuvenation of the Chinese nation.

河南工学院

河南工学院是省属全日制普通本科院校，位于豫北名城新乡市，始建于 1975 年。学校是全国就业先进单位、全国毕业生典型经验高校、河南省示范性应用技术类型本科高校、河南省文明校园标兵、河南省平安校园。

学校在工学结合中诞生、在校企合作中发展，有较深厚的历史积淀和较丰富的办学资源。在近半个世纪的办学历程中，逐步铸炼形成了“厚德、博学、求实、创新”的校训、“团结、创造、竞争、快乐”的校风、“修德、爱生、敬业、善育”的教风、“勤学善思、知行合一”的学风，沉淀了“开拓进取、自强不息”的学校精神，学校校风淳、教风正、学风浓。目前，学校全日制在校生 20000 余名，教职工 1100 余人，占地面积 1220 亩，校舍建筑面积 56 多万平方米，馆藏适用纸质图书 171 万余册，电子图书 26 余万册；教学科研仪器设备总值 2.6 亿余元。

学校坚持以学科专业建设为龙头，优化学科专业结构。目前，学校设有 15 个学院（部），36 个本科专业，拥有省级重点育学科、省级一流本科专业建设点和省级以上特色（示范、名牌）专业 28 个，形成了智能制造、新能源材料、电缆工程等特色学科，初步构建了以工学为主，工、管、经、文、艺五大学科门类协调发展的学科专业体系。

学校大力实施人才建设工程，推进高端人才集聚。现有专任教师 970 多名，具有高级职称教师 300 多人，聘请院士、长江学者、教授等 20 余人，拥有国务院政府特殊津贴专家、国家级教学名师、百千万人才工程国家级人选、省级教学名师、省优秀专家等 70 多名，省级优秀教学团队 2 个。

学校坚持立德树人，教育教学成果丰硕。学校是全国高校实践育人创新创业基地、河南省职业教育双师型教师培训培养基地高校。拥有国家级、省级示范性实训基地、职业技能鉴定所、虚拟仿真实验教学项目 14 个，获得国家级省级教学成果奖 19 项、教育部产学合作协同育人项目 35 项，拥有 29 门国家级、省级一流本科课程。近 5 年来，学生在中国“互联网 +”大学生创新创业大赛、“挑战杯”河南省大学生课外学术科技作品竞赛、全国大学生电子设计竞赛、全国大学生数学建模竞赛等各类学科竞赛中获省部级以上奖励 300 多项。毕业生综合素质深受用人单位好评，质量逐年提升，就业率始终保持在 95% 以上。

学校重视科技创新，服务社会成效显著。建有 1 个省级重点实验室、10 个省级工程（技术）中心。近年来，学校主持承担国家自然科学基金项目等省级以上科研项目 200 多项，以第一作者单位在 SCI、EI、CSSCI 等期刊上发表学术论文 300 多篇，出版学术著作、教材 80 余部，获批专利 110 多项，为企业提供技术咨询服务 420 多项，学校被评为河南省知识产权综合能力提升专项行动“十快”高校。

学校坚持开放办学，国际合作迈出坚定步伐。积极响应共建“一带一路”教育行动，与德国、英国、加拿大、韩国等国家（或地区）的知名高校或机构开展实质性合作，引进优质教育资源和办学理念，促进办学水平明显提升。站位新时代，开启新征程。学校将始终以习近平新时代中国特色社会主义思想为指导，坚持社会主义办学方向，落实立德树人根本任务，团结带领全校党员干部和师生员工，不忘初心，

开拓进取，抢抓机遇，乘势而为，以高质量的党建推动事业高质量的发展，为把学校建设成特色鲜明、优势突出的高水平应用型大学而努力奋斗。

Henan Institute of Technology

Henan Institute of Technology is a full-time public undergraduate university under the administration of Henan Province, located in Xinxiang, a renowned city in northern Henan. Founded in 1975, the university has been recognized nationally for excellence in employment outcomes, and as a model for graduate development. It is also honored as a provincial model application-oriented undergraduate institution, a role model for campus civility, and a safe campus.

Rooted in engineering education and developed through university-enterprise collaboration, HIT has cultivated a rich history and substantial educational resources. Over nearly five decades, it has shaped a distinct academic spirit and culture, encapsulated by its motto “Virtue, Learning, Pragmatism, Innovation” a campus culture of “Unity, Creativity, Competitiveness, Joy”，teaching values of “Integrity, Dedication, Professionalism, and Nurturing”， and a learning ethos of “Diligence, Reflection, and Unity of Knowledge and Practice” .The university currently enrolls over 20,000 full-time students and employs more than 1,100 faculty and staff. The campus covers 1,220 mu (approximately 200 acres), with a building area exceeding 560,000 square meters. The library holds over 1.71 million print volumes and 260,000 electronic books. The total value of teaching and research equipment exceeds 260 million RMB.

HIT emphasizes discipline construction as the engine of development and continues to optimize its academic structure. It comprises 15 schools and departments, offering 36 undergraduate programs. The university has established 28 provincial and higher-level key disciplines and featured majors, including national and provincial first-class programs. Featured disciplines include Intelligent Manufacturing, New Energy Materials, and Cable Engineering. A comprehensive academic system is taking shape, with engineering as the core and balanced development across engineering, management, economics, humanities, and arts.

The university actively promotes talent development, focusing on attracting high-end professionals. Among its over 970 full-time faculty members, more than 300 hold senior professional titles. It has invited over 20 distinguished experts, including academicians, “Changjiang Scholars”，and renowned professors. More than 70 faculty members have received prestigious honors such as the State Council Special Allowance, National Teaching Masters, National “Ten Thousand Talents Program” Young Top Talents, and Excellent Provincial Experts. HIT also boasts two excellent provincial teaching teams.

Adhering to its mission of moral education, HIT has achieved outstanding results in teaching. It is recognized as a National Innovation and Entrepreneurship Base for Practical Education and a provincial training hub for dual-qualified vocational education teachers. The university operates 14 national and provincial exemplary practical training bases, skill assessment centers, and virtual simulation labs. It has won 19 national and provincial teaching achievement awards, undertaken 35 “Industry-Education Integration” projects with the Ministry of Education, and

developed 29 national and provincial first-class undergraduate courses. Over the past five years, students have earned more than 300 awards at the provincial level and above in prestigious competitions such as the China “Internet+” Innovation and Entrepreneurship Competition, the “Challenge Cup”, and national contests in electronics and mathematical modeling. The graduates are well-received by employers, with the employment rate consistently exceeding 95%.

HIT places a strong emphasis on scientific innovation and social service. It is home to one provincial key laboratory and ten provincial engineering (technology) centers. In recent years, it has led over 200 provincial and national research projects, including those funded by the National Natural Science Foundation. More than 300 academic papers have been published in SCI, EI, and CSSCI-indexed journals, alongside 80 academic books and textbooks. The university has obtained over 110 patents and provided over 420 technical consulting services to enterprises. It has been recognized as one of Henan's top ten universities for enhancing intellectual property capacity.

Committed to openness, HIT actively promotes international cooperation. In alignment with the “Belt and Road” education initiative, it has established substantial collaborations with renowned institutions in Germany, the UK, Canada, South Korea, and other countries or regions, bringing in high-quality educational resources and advanced educational philosophies that have significantly elevated the university’ s academic standing.

Facing the new era and a new journey, HIT remains guided by Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era. The university is committed to the socialist orientation in education and the fundamental task of moral cultivation. It will unite faculty, staff, and students to stay true to its mission, forge ahead, seize opportunities, and drive development through high-quality Party building—striving to build a high-level, distinctive, and application-oriented university with outstanding strengths.

◆ 主办方：IEEE计算智能学会
Host : IEEE Computational Intelligence Society

◆ 承办方：郑州大学电气与信息工程学院
Organizer : School of Electrical and Information Engineering, Zhengzhou University

◆ 协办方：河南工学院
Co-organizers : Henan Institute of Technology

河南省生物信息学会(筹)
Henan Society of Bioinformatics (Preparatory)

IEEE CIS 郑州分会
IEEE CIS Zhengzhou Chapter

IEEE 郑州大学学生分会
IEEE Zhengzhou University Student Branch