TIANMING WANG

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EDUCATION

University of Technology Sydney Sep. 2016 - Present
Ph.D. in Robotics and Machine Learning

Australian National University Jul. 2014 - Jun. 2016
B.Eng. in Electronic Engineering (First Class Honours)

Beijing Institute of Technology Sep. 2012 - Jun. 2014
B.Eng. in Electronic Engineering

RESEARCH EXPERIENCE

Amazon Web Services Jul. 2020 - Present
Applied Scientist Intern

· Implemented automated machine learning and hyperparameter optimization algorithms for state-of-the-art deep learning models in computer vision, mainly for the tasks of image classification and object detection.

· Benchmarked AutoML frameworks on various computer vision datasets.

· Developed meta-learning algorithms to automatically suggest hyperparameter search space in AutoML for computer vision tasks.

University of Technology Sydney Sep. 2016 - Present
Ph.D. Student

· Participated in designing, building and testing underwater robots.

· Developed modeling methods of a robotic system consisting of a floating platform and a passive flexible-link, using quasi-Lagrangian approach and Euler-Bernoulli beam assumption.

· Developed reinforcement learning algorithms for stabilizing mobile robots subject to unobservable excessive disturbances, using either history window formulation or recurrent neural networks.

· Developed transfer learning algorithms for disturbance rejection using either model-based initialization or transition mismatch compensation. Real-world experimental data has been collected for verification.

Australian National University Jul. 2014 - Jun. 2016
Research Assistant

· Developed visual tracking algorithms based on either infrared target or color code.

· Implemented and compared different control algorithms for trajectory following on a quadrotor in indoor environment using OptiTrack system.

· Developed a visual servo control system for autonomous landing of a quadrotor on an autonomous ground vehicle in outdoor environment.

PUBLICATIONS

· Modular Transfer Learning with Transition Mismatch Compensation for Excessive Disturbance Rejection
Tianming Wang, Wenjie Lu, Huan Yu, Dikai Liu
submitted to *IEEE Transactions on Cybernetics (TCyb)*

· DOB-Net: Actively Rejecting Unknown Excessive Time-Varying Disturbances
Tianming Wang, Wenjie Lu, Zheng Yan, Dikai Liu
IEEE International Conference on Robotics and Automation (ICRA), 2020

· Excessive Disturbance Rejection Control of Autonomous Underwater Vehicle using Reinforcement Learning
Tianming Wang, Wenjie Lu, Dikai Liu
Australasian Conference on Robotics and Automation (ACRA), 2018

· A Case Study: Modeling of A Passive Flexible Link on A Floating Platform for Intervention Tasks
Tianming Wang, Wenjie Lu, Dikai Liu
IEEE World Congress on Intelligent Control and Automation (WCICA), 2018

PROJECT EXPERIENCE

2D Sonar Localization System Aug. 2015 - Oct. 2015
Developed a 2D sonar localization system for detecting position of objects within 254 inches radius in 2D space using sonar sensors.

Remote Control Software based on Android Oct. 2013 - Dec. 2013
Developed an Android App realizing remote control between mobile phones. One phone can command another to take photo, record sound or video, get its location, and even block its incoming and outgoing calls. This App is used to improve mobile phone security, making it easier for users to find their phone back after being lost or stolen.

Wearable Input Device Dec. 2012 - Jun. 2013
Developed a "key-glove" by integrating micro buttons in T9 (Text on 9 keys) style on a glove. Users can do text editing on computers using this device through wireless connection.

SKILLS

· Experienced in C, C++, Python, Java, Matlab, Verilog, Assembly and Linux

· Specialized Software: PyCharm, Visual Studio, Eclipse, Android Studio, SolidWorks, Multisim, LTspice, Xilinx ISE, Atmel Studio, and Altera Quartus

· Experienced in development of FPGA and embedded system

· Experienced in development of robotic programs using Robot Operating System (ROS)

· Experienced in development of robot simulation using Virtual Robot Experiment Platform (V-REP)

· Experienced in development of deep learning algorithms using TensorFlow or PyTorch

AWARDS

· International Undergraduate Partnership Award, Australian National University 2014, 2015

· Outstanding Student of the Year, Beijing Institute of Technology 2013, 2014

· Second Prize in "Century Cup" Academic and Technology Works Competition 2014

· Outstanding Project Award in Undergraduate Innovation and Entrepreneurship Program 2013

EXTRA-CURRICULAR

BIT Student Union - ANU Branch Jul. 2014 - Jun. 2016
President

· Organized learning groups among engineering and IT students, let good students share their learning experience and provide help for exam review.

· Organized seminars on career planning, invited outstanding alumni and professors to share their experience.

· Organized Chinese students to participate in important events of Chinese Embassy.

王天明

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教育背景

2016.09 至今	**悉尼科技大学**	**工学博士在读**	**机器人学**
2014.07 – 2016.06	**澳大利亚国立大学**	**工学学士（一级荣誉学位）**	**电子与通信系统**
2012.09 – 2014.06	**北京理工大学**	**工学学士**	**电子科学与技术**

研究经历

2020.07 至今　**亚马逊人工智能研究院**　**应用科学家实习生**

- 为计算机视觉中的多种深度学习模型实现了自动化机器学习和超参数优化算法，主要针对于图像分类和目标检测任务
- 在多个计算机视觉的基准数据集上测试了自动化机器学习框架
- 在对视觉任务的自动化机器学习中，开发了元学习算法来自动提议超参数的搜索空间

2016.09 至今　**悉尼科技大学**　**博士研究生**

- 参与了水下机器人的设计、搭建和测试
- 使用准拉格朗日方法和欧拉伯努利梁假设，开发了一种动力学建模方法，适用于由浮动平台和被动柔性臂组成的机器人系统
- 使用历史窗口方法或者循环神经网络，开发了多种强化学习算法，为处在不可观测的过度环境干扰下的移动机器人实现稳定的导航和控制
- 使用基于模型的初始化或者状态转换失配补偿，开发了用于水下机器人干扰抑制的迁移学习算法，并收集了真实世界的机器人运动和水流数据用于算法验证

2014.07 – 2016.06　**澳大利亚国立大学**　**研究助理**

- 开发了基于红外目标和彩色标签的视觉追踪算法
- 在室内环境下，使用 OptiTrack 运动捕捉系统，为四旋翼飞行器的轨迹跟随任务实现并对比了多种控制算法
- 在室外环境下，开发了一套视觉伺服控制系统，实现了四旋翼飞行器自主导航并降落在地面移动机器人上的任务

论文发表

- Modular Transfer Learning with Transition Mismatch Compensation for Excessive Disturbance Rejection
  Tianming Wang, Wenjie Lu, Huan Yu, Dikai Liu
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- DOB-Net: Actively Rejecting Unknown Excessive Time-Varying Disturbances
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- Excessive Disturbance Rejection Control of Autonomous Underwater Vehicle using Reinforcement Learning
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项目经历

2015.08 – 2015.10 **基于嵌入式系统的二维声呐定位系统** **课程项目**

- 独立开发了一套二维声呐定位系统，使用多个超声波测距仪来检测一定范围内目标的二维空间位置

2013.10 – 2013.12 **基于 Android 系统的远程控制软件** **课程项目**

- 开发了实现手机间远程控制的 Android 应用程序，可实现对受控手机地理位置等数据的获取，远程进行拍照录音录像，以及屏蔽接听和拨打电话的功能
- 此应用程序用于提升手机的安全性，便于在丢失或被盗后及时找回
- 本人负责大部分软件功能的程序设计与实现以及后期调试

2012.12 – 2013.06 **穿戴式输入装置** **竞赛项目**

- 开发了一款“手套键盘”，在手套指节部分按照手机九宫格按键样式安装了薄膜按键，用户可以通过无线连接在使用此设备的计算机上进行文本编辑
- 作为项目负责人，负责整个小组的任务分配与整合，并负责 PC 端程序设计及部分硬件连接的工作

专业技能

- 熟练使用 Python、C、C++、Java、MATLAB、Verilog、Assembly 等程序设计语言以及 Linux 操作系统
- 熟练使用 PyCharm、Visual Studio、Eclipse、Android Studio、SolidWorks、Multisim、LTspice、Xilinx ISE、Atmel Studio、Altera Quartus 等工程应用软件
- 熟练掌握 FPGA 与嵌入式系统的操作与应用，可进行独立开发
- 熟练掌握 Android 平台手机应用程序的开发
- 熟练掌握机器人算法开发和 ROS 的使用
- 熟练掌握机器人仿真程序开发，以及仿真平台 V-REP 的使用
- 熟练掌握深度学习算法开发，以及深度学习开源框架 TensorFlow、PyTorch、MXNet 的使用

荣誉奖励

2014.07、2015.07	获得澳大利亚国立大学优秀国际学生奖学金
2013.12、2014.12	获得北京理工大学“学年全优良”表彰
2013.11、2014.11	获得北京理工大学“优秀学生”称号
2013.03、2013.10、2014.03、2014.10	获得北京理工大学人民奖学金
2014.04	获得北京理工大学第十一届“世纪杯”学术科技作品竞赛二等奖
2013.06	获得北京理工大学校级“大学生创新训练计划项目”优胜奖

校园经历

2014.07 – 2016.06 **北京理工大学学生会澳大利亚国立大学分会** **主席**

- 负责接待本校教师考察团来澳访问，并组织老师们与同学们的交流活动
- 组织课下学习小组，请课业成绩优秀的同学分享学习经验并提供考试复习指导
- 策划和组织职业规划与经验交流会，邀请毕业校友和学院教授分享经验，并为同学们未来的职业发展进行指导
- 组织同学参与到中国大使馆的一系列外事活动中，得到了大使馆领事的认可