

DRONE WORLD CONGRESS 2019

2019 世界无人机大会

ArduPilot Conference, Shenzhen

国际无人系统开源开发者大会

主办单位

深圳无人机行业协会

ArduPilot 国际开源者组织

支持单位

YUNEEC 昊翔

ORGANIZED BY

Shenzhen UAV Industry Association

ArduPilot Organization

SUPPORTED BY

YUNEEC HaoXiang



国际无人系统开源开发者大会 - 议程

6月21日 08:30-15:55 | 深圳会展中心 五楼玫瑰三厅

时间	主题	嘉宾
08:30-09:30		签到
09:30-09:40		致辞
	雅尼	
		主旨演讲
9:40-11:50	非 gps 导航 & 目标回避	兰迪·麦凯 ArduPilot 直升飞机主管
	UAVCAN 硬件系统	雅尼·希鹿毕尼 ArduPilot 副主席
	用无人机建造工业解决方案	路易斯·瓦莱·冈卡尔维斯 ArduPilot 应用程序
	机载 LUA 脚本	路易斯·瓦莱·冈卡尔维斯 ArduPilot 应用程序
	总能量控制系统调优	汤姆皮蒂格尔 ArduPilot 飞机副主管
11:50-13:00		午休
13:00-15:35	基于多轴飞行器导航控制器的新 S 曲线	伦纳德·托马斯·霍尔 ArduPilot 姿态控制
	将 ArduPilot 移植到一个新板 :ChibiOS/HWDEF	雅尼·希鹿毕尼 ArduPilot 副主席
	无人机编队控制与通信网络：挑战与机遇	金洁 若联科技有限公司创始人 CEO&CTO
	激光雷达助力无人机行业新发展	袁海山 北醒（北京）光子科技有限公司产品总监
	云端无人机的见解与分享	雷利彬 广州雷迅创新科技有限公司 CTO
15:35-15:55	问与答	全体嘉宾

ArduPilot Conference, Shenzhen

Forum Agenda

09:00-17:00, June 21 | 5F, Rose Hall No.3, SZCEC

Date	Topics	Speaker
08:30-09:30	Registration	
09:30-09:40	Greeting	
	Jani Hirvinen	
	Keynote Speech	
9:40-11:50	Non-GPS Navigation & Object Avoidance	Randy Mackay ArduPilot Copter lead
	UAVCAN Hardware systems	Jani Hirvinen ArduPilot Hardware/Infra Lead, Co-Founder
	Building industrial solutions with Drones	Luís Vale Gonçalves ArduPilot applications
	Onboard LUA scripting	Luís Vale Gonçalves ArduPilot applications
	TECS Tuning	Tom Pittenger ArduPilot Plane Co-Lead
11:50-13:00	Rest	
13:00-15:35	New S-Curve Based Multi-Rotor Navigation Controller	Leonard Thomas Hall ArduPilot Attitude control
	Porting ArduPilot to a new board, ChibiOS/HWDEF	Jani Hirvinen ArduPilot Hardware/Infra Lead, Co-Founder
	The application and future of cloud drones	Jay Jin CEO&CTO of Ruolian technology Co., Ltd
	LiDAR Promotes New Development of Drone Sector	Yuan Haishan Chief Product Officer of BENEWAKE (BEIJING) CO.,Ltd.
	Cloud Drone View Sharing	Ray CTO of Guangzhou Lei Xun Innovation Technology Co., Ltd
15:35-15:55	Q & A	ALL



兰迪·麦凯

ArduPilot 直升飞机主管

Randy Mackay

ArduPilot Copter lead



演讲主题

非 gps 导航 & 目标回避

内容概要

非 GPS 导航: ArduPilot 为没有 GPS 的情况下飞行或驾驶的 AP 车辆提供各种方法, 包括信标、光流和 SLAM (定位与建图)。Randy 将回顾现有的方法以及我们希望在不久的将来支持的最有前景的方法。物体躲避 :ArduPilot 使用机载或舷外算法为直升机和自动地面车辆避免物体。Randy Mackay 将讨论这些特性的最新更新, 它们的基算法以及下一步的打算。

嘉宾简介

Randy Mackay 拥有 6 年以上的 ArduPilot 开发经验, 并且是 ArduPilot 项目的 Arducopter 的领头人。兰迪负责安全机制、对于新的传感器的支持、高度和位置的控制、新的 MAVLink (微型空中飞行器链路通讯协议) 的信息等方面的众多改进措施的整合。鉴于 Randy 的广泛背景, 他有一种独特的能力为新开发人员提供关于如何实现特性的培训和建议。

Topic

Non-GPS Navigation & Object Avoidance

Speech Abstract

Non-GPS navigation: ArduPilot supports various methods for flying/driving AP vehicle without a GPS including beacons, optical flow and SLAM. Randy will go over the existing methods and the most promising methods we hope to support in the near future.

Object Avoidance: ArduPilot includes object avoidance for Copter and Rover using onboard or offboard algorithms. Randy Mackay will discuss the latest updates on these features, the algorithms they are based on and what to expect next.

Speaker Information

Randy Mackay has 6+ years of ArduPilot development experience and is the lead Arducopter developer for the ArduPilot project. Randy is responsible for incorporating countless improvements (in cooperation with other team members) including safety features, support for new sensors, attitude and position control, new MAVLink messages. Given Randy's extensive background he has a unique ability to provide training and advice to new developers on how features could be implemented.



雅尼·希鹿毕尼

ArduPilot 副主席

Mr. Jani Hirvinen

ArduPilot Hardware/Infra Lead, Co-Founder



演讲主题

将 ArduPilot 移植到一个新板 :ChibiOS/HWDEF

内容概要

如果您正在从事电子开发工作，并且正在设计与 ArduPilot 兼容的自动驾驶仪硬件，那么这个演讲特别适合您。Jani 先生将教授如何使用基于 STM 的开发板和 ArduPilot 软件支持的几种不同传感器来为新硬件平台配置 ArduPilot 软件堆栈。

嘉宾简介

雅尼先生出生于芬兰航空家族，是全球知名的无人技术先驱以及诸如 ArduPilot, DIYDrones 和 DroneCode 这些著名的国际无人组织的创始人，他还是 ArduCopter 平台的创始人，该平台开启了我们当前的无人机革命。雅尼先生具备处理多种任务的能力，他航空经验丰富，是个航空界的奇才。他参与了无人驾驶和全尺寸有人驾驶飞机的制造工作 40 多年。三十多年来，他一直与各种 IT 平台打交道，处理复杂的电子和先进的机器人技术。雅尼先生拥有多项全球无人产业奖和在全球组织中的职位，他还被世界无人机联合会（中国）提名为副主席和深圳无人机行业协会专家委员会成员。

Topic

Porting ArduPilot to a new board: ChibiOS/HWDEF

Speech Abstract

If you are working on electronics development and you are designing ArduPilot compatible autopilot hardware, this talk is especially for you. Mr. Jani will teach on how to configure ArduPilot software stack for the new hardware platform using STM based developer board and several different sensors that are supported by the ArduPilot software.

Speaker Information

Mr. Hirvinen was born to an aviation family in Finland. He is a globally known leader and pioneer in unmanned technologies and a founder of famous international unmanned organizations like ArduPilot, DIYDrones and DroneCode.

Hirvinen is the original creator of the ArduCopter platform, which started our current Drone Revolution.

Jani is a multi-tasking, experienced aviation and electronic prodigy. He has been involved in building both unmanned and full-sized manned aircraft for over 40 years. He has also been dealing with various IT platforms, complex electronics and advanced robotics for over three decades. Jani holds several global awards for Unmanned Industry and position in the following global organizations



路易斯·瓦莱冈 卡尔维斯

ArduPilot 应用程序

Luís Vale Gonçalves

ArduPilot applications



演讲主题

主题 1 用无人机建造工业解决方案 主题 2 机载 LUA 脚本

内容概要

开源项目可以用来构建工业解决方案吗？我们将会使用 ArduPilot 不同的方法设计工业无人机解决方案的流程，例如配套计算机或 Lua 脚本。什么是新的 ArduPilot Lua 脚本。来探索最新的 ArduPilot 解决方案，除了简单的任务设计之外，还可以实现轻量级自动化。

嘉宾简介

路易斯·韦尔·冈卡尔维斯 (Luis Vale Goncalves) 最初是一名海洋工程师，后来转行到微软 (Microsoft) 担任高级系统工程师，最近为从事无人机 / 无人机领域开发工业解决方案的公司提供咨询。对无人驾驶汽车的热情很早就开始了，从控制线飞机开始，并且已经持续了将近 40 年，所以 3 年前加入 ArduPilot 项目是很自然的一步。

Topic

Building industrial solutions with Drones & Onboard LUA scripting

Speech Abstract

Can a Open source project be used to build industrial solutions? We will explore the design process of a industrial drone solution using ArduPilot with the different approaches possible, such as companion computers or Lua scripting.

What is new on ArduPilot Lua scripting. Come and explore the the newest ArduPilot solution for lightweight automation beyond the simple mission design.

Speaker Information

Luis Vale Gonçalves began his career as a Marine Engineer and later transitioned to work at Microsoft as a Senior Systems Engineer and lately consulting for companies working on the UAV/drones field developing industrial solutions.

The passion for unmanned vehicles began very early in life, started from the control line planes, and has been continued for almost 40 years, so joining the ArduPilot project 3 years ago was a natural step.

The knowledge of the real-life challenges that users face, when UAV/drones are used on mission-critical applications, helps ArduPilot to be a reference when trust and versatility are needed.



汤姆皮蒂格尔

ArduPilot 飞机副主管

Tom Pittenger

ArduPilot Plane Co-Lead



演讲主题

总能量控制系统调优

内容概要

TECS 是固定翼飞机的能量控制系统。如何调优 TECS 算法为不同类型和大小的飞机来提高控制性和稳定性。ArduPilot 的动力飞机带有良好调谐的 TECS，在风中性能更好，可以非常平稳、安全、准确地自动着陆。拥有大量自动着陆调整经验的 ArduPilot 固定翼的核心开发人员 Tom Pittenger 将教您如何为您的飞机调整 TECS。

嘉宾简介

Tom 自 2015 年以来一直是飞机的联席维护者。他擅长着陆、避碰及一切关于飞机的事情。他在位于加利福尼亚的英特尔公司工作，负责猎鹰 8+ 和下一代飞机项目。在此之前，他是 Airphrame 的飞行控制器负责人和 Trimble 公司的导航部门担任机器人工程师，从事自动拖拉机方面的工作。他拥有 Comp Engr 理学学士和 Elec Engr 的理学硕士学位。

Topic

TECS Tuning

Speech Abstract

TECS, the Total Energy Control System for fixed-wing aircraft.

How to tune the TECS algorithm to improve control and stability for different types and sizes of aircraft. An ArduPilot powered aircraft with a well tuned TECS will behave better in the wind and will make very smooth, safe and accurate auto-landings. Tom Pittenger, a core-developer of ArduPilot fixed-wing with lots of auto-landing tuning experience, will teach you how to tune TECS for your aircraft.

Speaker Information

Tom has been the co-maintainer of Plane since 2015. Specializes in landing, avoidance and all things plane. Based in California, he works at Intel on the Falcon 8+ and next-gen aircraft projects. Prior to that he was flight controller lead at Airphrame and a robotics engineer Trimble Navigation working on autonomous tractors. Has BS in Comp Engr and MS Elec Engr.



伦纳德·托马斯·霍尔

ArduPilot 姿态控制

Leonard Thomas Hall

ArduPilot Attitude control



FREESPACE
SOLUTIONS™

演讲主题

基于多轴飞行器导航控制器的新 S 曲线

内容概要

基于多轴飞行器导航控制器的新 S 曲线：ArduPilot Multicopter 和 Rover 软件因其非常精确的导航和姿态控制而闻名。ArduPilot 的控制专家 Leonard Hall 将提供有关该领域下一阶段改进的最新信息，其中包括用 S 曲线取代 ArduPilot 现有的“皮带”方法

嘉宾简介

Leonard Thomas Hall 负责 ArduPilot 的多旋翼机代码的许多核心部分，包括姿态，导航和电机控制库等关键部分。他还开发了多用途直升机“自动调谐”方面的功能，并被普遍认为是该领域为 ArduPilot 的多旋翼飞行器进行调校的专家。他负责为包括 IRIS、Y6、X8、Spectre 和 Solo 在内的许多 3DR 车辆找到理想的音调。他还为 bebop1 和 bebop2 开发了 Ardupilot 调。

Topic

New S-Curve based Multi-Rotor Navigation Controller

Speech Abstract

New S-Curve based multi-rotor navigation controller:

ArduPilot Multicopter and Rover software is well known for it's very accurate navigation and attitude control. ArduPilot's control expert, Leonard Hall, will provide an update on the next stage of improvements to this area which involve replacing ArduPilot's existing "leash" method with S-curves

Speaker Information

Leonard Thomas Hall is responsible for many core pieces of ArduPilot' s multicopter code including critical parts of the attitude, navigation and motor control libraries. He also developed the multicopter “AutoTune” feature and is generally considered the expert in tuning ArduPilot' s multicopter vehicles. He was responsible for discovering the ideal tune for many of 3DR' s vehicles including the IRIS, Y6, X8, Spectre and Solo. He also developed the Ardupilot tune for the Bebop 1 and Bebop 2.



金洁

若联科技有限公司创始人
CEO&CTO

Jin Jie

CEO&CTO of Ruolian
technology Co., Ltd

演讲主题

无人机编队控制与通信网络：挑战与机遇

内容概要

对于面向未来物联网的无人机应用，如何将机载无人机大脑、机载传感器与数据融合、行业应用设备与接口、网络设备与协议等进行标准化和集成化，始终是复杂而不确定性极强的挑战。编队表演融合了任务规划与分配、集群轨迹规划、编队及单机控制与优化、数据融合、编队重构与避障等技术。经过编队表演打磨的无人机大脑与各子系统，将能通用更多的垂直行业，加快“机器代人”的步伐。

嘉宾简介

金洁，瑞士苏黎世联邦理工学院 PolyHack 无人机大赛评委，具有 8 年以上基于无人机的物联网边缘计算的技术研发和工程管理经验。创立若联科技之前，先后在丹麦、爱尔兰积累了机器人控制与操作系统和计算机网络学习与科研经历，先后参与多个欧盟项目，部分工作以成为欧洲下一代网络技术标准，曾获剑桥大学 NetFPGA 比赛第一名。回国后于 2015 年 6 月创立若联科技，带领团队研制出面向飞行机器人的 Phenix 无人机大脑，并成功应用在 S330 编队无人机、i800 工业检测无人机和 R 系列教研培训无人机中。

Topic

UAV formation control and communication networks: challenges and opportunities

Speech Abstract

For uav applications oriented to the future Internet of things, how to standardize and integrate airborne uav brain, airborne sensor and data fusion, industrial application equipment and interface, network equipment and protocol, etc. is always a complex and uncertain challenge. The formation performance combines technology such as: tasks planning and allocation, cluster trajectory planning, formation and stand-alone control and optimization, data fusion, formation reconstruction and obstacle avoidance, etc. The uav brain and subsystems polished by formation performance will be able to use in more vertical industries and accelerate the pace of "robot generation".

Speaker Information

Jin jie, a jury member of the PolyHack drone competition at the federal institute of technology in Zurich, Switzerland, has more than 8 years' experience in technology development and engineering management of uav-based edge computing of the Internet of things. Prior to founding Ruolian technology, he accumulated the experience of robot controlling and operating system, computer network learning and research in Denmark and Ireland. He has participated in several EU projects, and some of his work has become the standard of European next-generation network technology. He once won the first prize in the NetFPGA competition of Cambridge university. After returning to China, he established Ruolian technology in June 2015, and led the team to develop Phenix UAV brain for flying robots, which was successfully applied in S330 formation UAV, i800 industrial test uav and R series teaching, research and training UAV

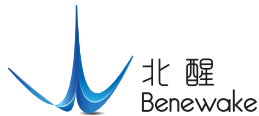


袁海山

北醒（北京）光子科技
有限公司产品总监

Haishan Yuan

Chief Product Officer of
BENEWAKE (BEIJING)
CO.,Ltd.



演讲主题

激光雷达助力无人机行业新发展

内容概要

随着无人机种类和功能的丰富：植保，测绘，表演，配送等等，无人机对地飞行高度测量和飞行避障的安全需求越来越多，激光雷达依托于体积小，重量轻，测量精准等优势，在无人机行业快速发展过程中，发挥着不可或缺的重要作用。本次交流旨在探讨激光雷达在无人机行业的拓展应用，寄希望更专业服务无人机行业。

嘉宾简介

10 余年激光雷达行业经验，曾在 SICK, QUANERGY 等企业任产品经理，业务拓展经理等职位，现担任北醒激光雷达产品总监，主要负责机器人，无人机，料位计等行业激光雷达的产品设计与推广。

Topic

LiDAR Promotes New Development of Drone Sector

Speech Abstract

With development of drone models and function in agricultural plant protection, survey and mapping, performance and logistic distribution sectors, the demand for safety in flight height survey and collision avoidance is increasing. Thanks to small size, light weight and precise survey, LiDAR plays indispensable role in rapid development of drone sector. The LiDAR application in drone sector is discussed to serve sector in professional way.

Speaker Information

With over 10 years experience in laser radar sector and used to be product manager and business development manager in SICK, QUANERGY and other similar companies, now works as LiDAR chief supervisor in Benewake, mainly engaged in design and promotion of LiDAR products in robot, drone and level sensor sectors.



雷利彬

广州雷迅创新科技有限公司 CTO

MR.Ray

CTO of Guangzhou Lei Xun
Innovation Technology
Co., Ltd



演讲主题

云端无人机的见解与分享

内容概要

万物互联的时代，云端的无人机架构出现与传统无人机的架构区别，基于 ArduPilot 的无人机如何快速部署云端应用。

嘉宾简介

雷利彬 是 CUAV 的 CTO, 拥有 6 年以上 ArduPilot 硬件开发经验，曾主导多款基于 ArduPilot 飞控开源硬件的研发和无人机云端平台的研发，并对无人机行业有深入的见解和研究。

Topic

Cloud Drone View Sharing

Speech Abstract

Introduction: In the era of the Internet of everything, the cloudless UAV architecture is different from the architecture of traditional UAV. How to quickly deploy cloud applications for drones Based on ArduPilot.

Speaker Information

MR.Ray is the CTO of CUAV. He has more than 6 years of experience in hardware development of ArduPilot. He has led the research and development of some open-source hardware based on ArduPilot and the development of cloud platform for drones. He has in-depth insights and research on the drone industry.