

**Корбетт Ровэлл**  
(Corbett Rowell)

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**Учёная степень:** доктор технических наук

**Ученое звание:** профессор

**Область научных интересов:** беспроводные технологии, антенны, базовые станции

**Страна:** Гон-Конг (Китай), США, Казахстан

Директор по исследованиям в научно-исследовательском центре China Mobile Research Institute, (Гон-Конг (Китай)), профессор университета Назарбаева (Казахстан)

**Summary of Qualifications**

- Passionate about antenna technology and have worldwide recognition in the antenna field with over 18 years of practical experience in high-tech research from the miniaturised mobile phone antennas, base-stations, to MRI RF coil arrays, NFC wireless payment, wireless charging, and green RF. Featured on Hong Kong television and Chinese newspapers as antenna expert and one of the leading experts in 5G Communications, leading 5G workshops at IEEE MTT and LTE World conferences.

Previous position included working inside China Mobile Research Institute as the first Western Research Director (Level 10: top 0.1% of China Mobile) developing the world's first TD-LTE test platform of Large Scale Antenna Arrays for eventual standardisation of China Mobile's 5G proposals with antenna, RF system, digital, fiber, and C-RAN integration.

Currently a Full Professor at a new university in Central Asia with the responsibility of building a team of professors/students and top-notch research labs focused on wireless communications, with particular emphasis on 5G/6G, mmWave, M2M, Satellite, and Massive MIMO. Concurrently a Senior Advisor for external companies developing advanced technologies for 5G, LSAS, mmWave, and Massive MIMO applications.

- Over 30 granted patents and 21 publications with 1300+ citations in innovative antenna and RF technology. One US patent was granted within 18 months and a second patent was put under US National Security review due to its importance to advanced military applications. An extensive review and analysis of mobile phone antenna technology was featured as the cover page and 20 page article in the IEEE APS Magazine (#1 Top downloaded paper in 2013 for APS Magazine) that was later published as a chapter on "Cellular Antenna Design" for the comprehensive "Encyclopaedia of Electrical Engineering" by Wiley Publishing. Recent 5G article in IEEE Communications Magazine was #12 downloaded paper in IEEE Xplore.

- Managed multi-million dollar projects between multiple government departments, research institutes, SMEs, and Fortune 500 companies. Intimately familiar with Hong Kong Government Rules & Regulations, departmental structure, tax and legal code relevant to startups and research. Extensive experience with Knowledge Management and Technology Transfer within research institutes and venture capital industry.

Well-rounded and comprehensive experience in all aspects of antenna and wireless design from research institutes, design, manufacturing, startups, to technology incubators, operators, and government policy:

- Disruptive Technology: Was a key member of the original team that first designed internal antennas for mobile phones in the late 1990's that resulted in Nokia achieving large market share. Internal antennas pioneered new form-

factors and reduced the human tissue absorption of electromagnetic radiation. Currently working on antenna and RF technologies that can increase the capacity of current 4G and proposed 5G networks by over 100 times using less than half of the current power consumption.

- Manufacturing: Designed the first internal antenna production process at Allgon/Laird that resulted in producing 100's of millions of antennas over the past 15 years. Further worked on internal antenna production processes at Avantego and Molex.
- Startup: Started a successful antenna design company with customers that included Samsung, Ericsson, and Nokia. The startup was sold four years later to one of the world's largest connector companies as a foundation for their first R&D centre in Asia.
- Operators: Development of new technologies for the largest telecommunications network in the world in order to realise significant power savings, higher capacity, and enable Internet of Things.
- Societal Impact: Worked within a Hong Kong government research institute for over 7 years and a cumulative budget of 10 Million USD developing innovative antenna and RF solutions with high commercial impact and addressing societal needs with the following government departments: Fire Services Department, Police Department, Buildings Department, Food and Environmental Health Department, and Hong Kong Monetary Authority.
- References:
  1. Dr. Wei Chen: Chief Scientist at China Mobile & Managing Director of China Mobile IoT Research Institute
  2. Dr. Justin Chuang: Vice President in ASTRI
  3. Dr. Ross Murch: Department Head of Hong Kong University of Science & Technology, Electronic & Computer Engineering

## ***Professional Experience***

### ***2014-Present***

*Nazarbayev University Kazakhstan Full Professor: Electronic & Electrical Engineering*

- Teach Electromagnetics, Wireless Communications, and Data Communications Courses
- Build a team of professors & graduate students in Wireless Communications
- Setup advanced wireless labs with communications equipment from 1-40 GHz
- Develop patent and knowledge management strategy for School of Engineering
- Engage with international universities and industry on collaborative projects
- Manage and direct the ICT PhD program in the School of Engineering
- Technical Program Co-chair for IEEE MTT IWS !

### ***China Mobile Research Institute China***

*Research Director: Green Communications Research Center*

- Responsible for forming an ecosystem of companies and universities to build prototypes and test platforms for 5G cellular systems with targeted deployment in 2020
- Responsible for setting up a new measurement system for characterising performance of new active antenna paradigms for 5G base-stations
- Program and overall strategy management for 5G antenna & RF technologies
- Invited 5G and Green RF workshop leader/editor for IEEE MTT, EMC, LTE-World, and EDICON 2014 conferences
- Most successful/attended workshop of the IEEE IWS 2014
- Elected Technical Program Chair for IEEE IWS2015
- Six invited papers/chapters to IEEE ComSoc, IEEE MTT and Wiley Publishing !

### ***2005-2013***

*Applied Science & Technology Research Institute Hong Kong R & D Director: RF Systems*

- Manage multi-million dollar projects: project management, budget control, funding requests, recruiting, facilities management, and interface with multiple government and university departments
- Responsible for leading a team of 25 engineers across multiple projects including smart antenna arrays, active antennas, reconfigurable antennas, RF-jammers, digital-RF, and low-field MRI
- Responsible for founding four regional Centers of Excellence: Antenna Centre of Excellence, MRI R&D Centre, Digital-RF R&D Centre, and Wireless Sensor Network Centre
- Responsible for working on customer projects (highlighted examples): Atheros, Wireless Charging, DPD for power amplifiers, wideband RRUs for LTE and WCDMA, and WSN for HK government departments
- 14 patents granted, 11 patents pending, and 13 publications in major IEEE journals and conferences

### ***2003-2005***

*Molex Hong Kong Inc. Hong Kong, Senior RF Engineer*

- Setup the Molex Antenna R&D Centre for Asia Pacific with collaboration with local universities
- Responsible for developing advanced internal and external antenna solutions for Nokia Research Labs

- Responsible for software design for measurement equipment including network analyzers, anechoic chambers, and SAR testing equipment
- Responsible for working on customer projects from initial concept to production
- Customers included: Nokia, Sony, Motorola, and HTC (Taiwan)
- Three papers presented at IEEE APS conferences !

### **1998-2003**

*Integra Antennas Ltd. Hong Kong/Europe, CEO*

- Solely responsible (1998-2000) for start-up company, including planning, business strategy, professional research, customer networking and servicing, staff recruitment and training, day-to-day management and accounting
- Awarded “Business Incubation Scheme” status by the Hong Kong Government
- Set-up strategic partnerships with a production company and local universities
- Designed mobile phone antennas for the following customers: Nokia, Ericsson, Samsung, LG, Panasonic, Sony, Maxon, Haitai, NexComm, and Hyundai (resulting in 6 patent applications: 1 USA and 5 PCT)
- Molex Inc (2nd largest connector company) formed a partnership with Integra in 2003
- Designed and patented new antenna measurement equipment (2 patents granted)

### **2000-2002**

*J. P. Morgan Chase (LabMorgan) New York, USA, Wireless Domain Expert*

- Responsible for evaluation of wireless and encryption technologies for venture capital funding of early-stage companies and internal spin-offs
- Designed wireless network architecture, including security, for internal projects
- Designed complete wireless application for secure access to internal databases
- Served as an wireless resource throughout the firm including Equity Research, Investment Banking, Payments and Processing, and Products & Services

### **1997-1998**

*Allgon Mobile Communications Sweden, R&D RF Engineer*

- Responsible for developing complete internal antenna line (including production) together with Nokia (resulting in 2 PCT patents and 2 USA patents)
- Performed research on how the mobile phone radiation affected the user’s head
- Responsible for all internal software development
- Served as systems administrator for simulation systems (Linux and Alpha Unix) Education

**May, 2013** *Hong Kong University Hong Kong, PhD: Electronic and Electrical Engineering*

PhD Dissertation Title: *Mobile Phone Internal Antenna Design* A comprehensive study of mobile phone technologies and focusing on slots inside mobile phone antennas, including discovery of band-stop isolation properties of particular slot geometries; published as a feature article in IEEE Antennas Magazine, an IEEE APS

**June, 1996** *Hong Kong University of Science & Technology Hong Kong, MPhil: Electronic and Electrical Engineering*

Master’s Thesis Title: *Dual Band Internal Antennas for Mobile Phones* Developed a new mobile phone antenna 50% smaller than antennas described in publications at the time. Thesis published in one conference (IEEE APS 1997) and one professional journal (IEEE APS Transactions). This work further resulted in one USA patent.

**June, 1994** *University of California Santa Cruz, CA, B.A.: Physics (Graduated with Honours)*

Senior Thesis Title: *3-D Computer Visualisations of Quasicrystals* Conducted numerical analysis of positions of atoms in a 3D Penrose tiling from measured X-Ray crystallography results. Thesis published in one journal (Computers in Physics 1996).