Multimedia and Wireless Networking: Unleashing Research Impacts through Technology Transfer

Gary Chan
Professor, CSE, HKUST
Academic History: Network Design and Analysis

Hisashi Kobayashi
(Princeton, 1967)

Leonard Kleinrock
(MIT, 1963)

Fouad Tobagi
(UCLA, 1974)

Gary Chan
(Stanford, 1999)

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Turning Research to Commercialization: The Golden Triangle

- Government
  - CRG/RGC
  - Innovation and Technology Funds (ITF)
- Technology Transfer Center, Department and School of Engineering at HKUST
  - Seed fundings
  - Advices and support on contractual agreements
  - R&D facilities and human resources
- Industry sponsors and collaborators
  - Funding, technical support, trial sites, equipment, etc

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Research Goal and Streamphony

- Build advanced network systems driven by research innovations, designed by engineering excellence
  - Build innovative systems based on enabling technologies leading to hopefully disruptive or killer applications. Build profitable companies. Build our better tomorrow --- now.
  - Addressing the curse of “scale”
  - Treating the university as my “garage”

- Streamphony: Network software for Internet video streaming
  - State-of-the-art live and on-demand video services
  - Research since 1993; commercialization activities in the past 8 years
  - Project supported by Google, Tencent, Cisco, Huawei, etc.
  - Technology licensed to MeiAh Entertainment (Stock code: 391) and China Mobile (Stock code: 941) Hong Kong
  - Gold Award, Best SME, HK ICT Awards 2014
  - Co-founded Ananflow 2013; startup in 2014 at Science Park (Ananflow)
Wherami and Lavinet

- **Wherami: Indoor positioning and tracking**
  - Highly accurate cost-effective indoor positioning technology
  - Research since 2010; commercial trials in the past 2 years
  - Supported by Google, Hong Kong International Airport, Cyberport, etc.
  - Google play: wherami cyberport, wherami hkust

- **Lavinet: Embedded software for high-performance Wi-Fi access**
  - Blindspot-free and high-throughput access
  - Research since 2002; commercialization activities in the past 7 years
  - Supported by Boeing, HEACO, HP, Ruckus, etc.
  - Technology licensed to Openplatform and Modern Terminals Ltd.
  - Best Innovation & Research Award (Bronze Award), Hong Kong ICT Awards 2012
  - Co-founded yfisoft 2013; startup in 2014 in Science Park
Indoor positioning

- Location-based streaming
- Indoor tracking and user analytics
- Unified network
- Wireless streaming

Multimedia streaming

Wi-Fi router

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Relentlessly Closing Theory-Practice Divide through Applied Research and Development

My research: bridge research with practice
→ close feedback loop
→ best performance in their applications

Research theories (tractability concern, simplifying assumptions, limited parameters)
→ strong/optimal performance

Industrial practice (holistic, unpredictable, uncontrollable, complex, inter-dependent parameters)
→ Research models not easily applied

Divide (鴻溝)

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Interested? Come talk to me