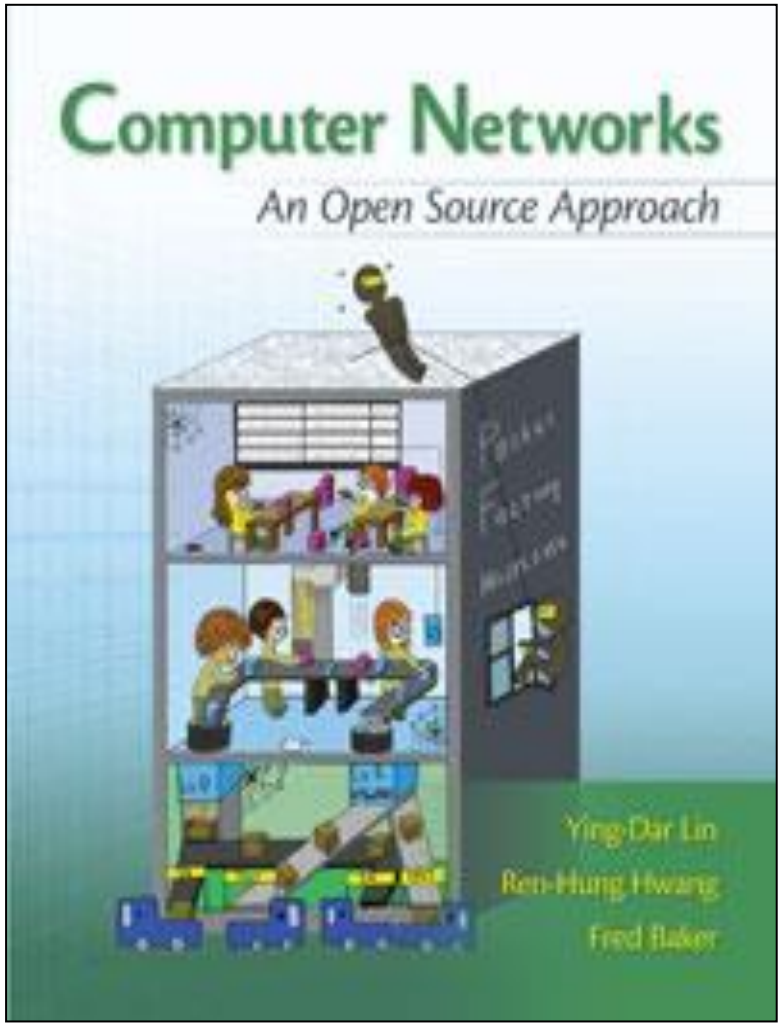
# Sharing Experiences on International Academic Services and Research
# 國際學術服務與研究經驗分享

Ying-Dar Lin 林盈達
IEEE Fellow, IEEE Distinguished Lecturer, ONF Research Associate
Editor-in-Chief, IEEE Communications Surveys and Tutorials
Distinguished Professor, CS, NCTU, TAIWAN
Director, Network Benchmarking Lab
www.cs.nctu.edu.tw/~ydlin, www.nbl.org.tw
March 2017

# 林盈達 Ying-Dar Lin

- B.S., NTU-CSIE, 1988; Ph.D., UCLA-CS, 1993
- Distinguished Professor (2014~)/Professor (1999~2013)/Associate Professor (1993~1999), NCTU-CS; IEEE Fellow (2013~); IEEE ComSoC Distinguished Lecturer (2014&2015); ONF Research Associate (6/2014~)
- Founder and Director, III-NCTU *Embedded Benchmarking Lab* (*EBL*; www.ebl.org.tw), 2011~
- Founder and Director, NCTU *Network Benchmarking Lab* (*NBL*; www.nbl.org.tw), 2002~
- Editorial Boards: IEEE Computer (2012~, Associate EiC from 2015), IEEE Wireless Comm. (2013~), IEEE Transactions on Computers (2011~), IEEE Network (2011~), IEEE Communications Magazine – Network Testing Series (2010~), IEEE Communications Letters (2010~), Computer Communications (2010~), Computer Networks (2010~) , IEEE Communications Surveys and Tutorials (2008~), IEICE Transactions on Information and Systems (11/2011~)
- Guest Editors of Special Issues: Open Source for Networking, IEEE Network, Mar & Sept 2014; Mobile Application Security, IEEE Computer, Mar 2014; Multi-Hop Cellular, IEEE Wireless Communications, Oct 2014; Deep Packet Inspection, IEEE JSAC, Q1 2015; Traffic Forensics, IEEE Systems Journal, Q2 2015; Software Defined Networking, IEEE Computer, Nov 2014.
- Co-Chair, IEEE Globecom'13 NGN Symposium; IEEE ICC'15 NGN Symposium.
- Chair, *ACM-ICPC Taiwan Council*, 2009~
- CEO, *Telecom Technology Center* (www.ttc.org.tw), 7/2010~5/2011
- Director, *Computer and Network Center*, NCTU, 2007~2010
- Consultant, *ICL/ITRI*, 2002~2010
- Visiting Scholar, *Cisco*, San Jose, 7/2007-7/2008
- Director, *Institute of Network Engineering*, NCTU, 2005~2007
- Co-Founder, *L7 Networks Inc.* (www.L7.com.tw), 2002

- Areas of research interests
  - Software defined networking
  - Deep Packet Inspection
    - Attack, virus, spam, porno, P2P
    - Software, algorithm, hardware, SoC
    - Real traffic, beta site, botnet
  - Internet security and QoS
  - Wireless communications
  - Test technologies of switch, router, WLAN, security, VoIP, 4G/LTE, SDN, and smartphones
- Publications
  - International journal: 112
  - International conference: 54
  - IETF Internet Draft: 1
  - Industrial articles: 170
  - Textbooks: 3 (Ying-Dar Lin, Ren-Hung Hwang, Fred Baker, *Computer Networks: An Open Source Approach, McGraw-Hill, Feb 2011*)
  - Patents: 32
  - Tech transfers: 8
- Well-cited paper: Multihop Cellular: A New Architecture for Wireless Communications, INFOCOM 2000, YD Lin and YC Hsu; #citations: 800; standardized into IEEE 802.11s, Bluetooth, WiMAX, and 3GPP




**Ying-Dar Lin, Ren-Hung Hwang, Fred Baker, Computer Networks: An Open Source Approach, McGraw-Hill, Feb 2011.**
**www.mhhe.com/lin; available now at amazon.com**
**Facebook Q&A Communit: www.facebook.com/CNFBs**
**ISBN: 0-07-337624-8 / 978-007-337624-0**

*Computer Networks: An Open Source Approach* considers *why* a protocol, designed a specific way, is more important than *how* a protocol works. Key concepts and underlying principles are conveyed while explaining protocol behaviors. To further bridge the long-existing gap between design and implementation, it illustrates *where* and *how* protocol designs are implemented in Linux-based systems. A comprehensive set of fifty-six *live* open source implementations spanning across hardware (8B/10B, OFDM, CRC32, CSMA/CD, and crypto), driver (Ethernet and PPP), kernel (longest prefix matching, checksum, NAT, TCP traffic control, socket, shaper, scheduler, firewall, and VPN), and daemon (RIP/OSPF/BGP, DNS, FTP, SMTP/POP3/IMAP4, HTTP, SNMP, SIP, streaming, and P2P) are *interleaved* with the text.


3

# Agenda

- Part I: Experiences on international academic services
  - Why: from visibility to partnership
  - What: from editorial board, special issue, program committee, technical committee, to distinguished lecturer
  - When: too junior vs. too senior
  - How: invited vs. voluntary
- Part II: Experiences on academic research
  - Why: academia vs. industry
  - What: criteria vs. impacts
  - When: independent vs. co-work
  - How: from proposal to publication
    - How to graduate your students on time
    - How to campaign for IEEE Fellow
- Lessons learned
- Skills learned and more to learn

# Disclaimer

- The following slides contain claims that might be too specific or strong, viewer's discretion is advised in generalizing them.
- Real experiences based on 7 years of international academic services and 21.5 years of research.
- Giving this talk does not imply the speaker's authoritativeness on international academic services or research. It merely implies that the speaker is willing to share to colleagues. In fact, the speaker still needs to improve himself and keep learning.
- The speaker hopes that the audience are willing to share their experiences too. A progressive society is the one willing to share.
- Know-how is often less important than willingness to try.

# Part I:
# Experiences on International Academic Services

# Why
## From Visibility to Partnership

- It all started with one question in 2008:
  - IEEE Fellow vs. IEEE Journal Editor: Which is more difficult?
- Better visibility
  - Titles as “decorations”
  - For yourself, NCTU, and Taiwan
  - Exception?: top US universities
- Better tracking of research trends
  - Emerging topics, life cycle of an area
- Skillful to engage
  - Familiar with logistics
  - Sense of the eco-system
  - Easier to partner with others
    - Services or research

# What

## From Editorial Board, Special Issue, Program Committee, Technical Committee, to Distinguished Lecturer …. and Beyond (BoG, Society Director/VP/P, etc.)

| Position | Where to Work | Type of Work | Issues |
|---|---|---|---|
| Editorial Board | • On Manuscript Central or EES (Elsevier Editorial System) mostly<br>• Side meetings of conferences (optional) | • Review invitation<br>• Late review reminding<br>• Review assessment<br>• Acceptance recommendation or decision | • Too many declines (2/3)<br>• Low review quality<br>• Long turn-around time<br>• Star connectivity to EiC |
| Special Issue Guest Editor | • Under some journals or magazines<br>• On Manuscript Central, EES, or EDAS mostly | • SI proposal<br>• CFP circulation<br>• Batched review process (similar to a workshop)<br>• Guest editorial | • Rejected proposal due to topic, survey, or team<br>• Not enough submissions to keep acceptance ratio under 25% |
| Program Committee | • On EDAS mostly<br>• Side meetings of conferences (optional) | • Review many submissions in a period<br>• Dispatch to students, colleagues, or yourself | • Burst of workload<br>• Student review quality<br>• Irresponsive TPC members, for TPC chairs |
| Technical Committee | • On mailing lists<br>• Open side meetings of conferences<br>• Under a society<br>• Run by chair, vice chair, secretary | • Conference organization and approval/sponsorship<br>• SI organization<br>• Nomination for awards or positions | • Inactive TCs<br>• Difficult to engage initially<br>• Often dominated by a few<br>• Need to campaign positions in voting |
| Distinguished Lecturer | • On a tour in a region<br>• Two tours per year | • Give speeches on hot topics<br>• Roadshow with 3+ talks in one tour | • Self arrangement (know the hosts)<br>• Arranged/invited by local chapters<br>• Developed or developing countries |

Lecture in Buenos Aires, Argentina

Lecture in Auckland, New Zealand


Lecture in Louvain, Belgium

Lecture in Austin, USA

# When
## Too Junior vs. Too Senior

- Too junior?
  - Turned down more frequently
  - Distraction when you already have too many to establish
  - Maybe TPC and SI could be a good start
- Too senior?
  - Rich in experiences and connections
    - Definitely a plus
  - Embarrassed to get turned down?
  - Challenging to keep the pace for certain jobs?

# How
# Invited vs. Voluntary

- Unless you are in a top US university….
- Unless you are a highly cited scholar….
- Unless you are already in the circle of trust or known….

→ Don’t expect invitations from decent journals and conferences!

- Identify publications that you’ve published often
  - Volunteer yourself
  - Or find an insider to nominate you
  - Attend side meetings (technical committees)
    - To know people (talk much)
    - To contribute ideas (think hard)
    - To serve the society (do follow up)

- Aggressiveness
  - It could be a campaign!
  - But don’t over-do it.
    - It’s not a full-time job. (Avoid 跑龍套.)
    - It’s not a gang. (Avoid 拉幫結派.)
- Willingness to communicate, learn, partner, and explore
  - English might or might not be an issue.
    - Lecturing your courses in English tells a big difference after 5-10 years!
- Quality and efficiency
  - Don’t ruin the reputation of yourself, NCTU, and Taiwan
    - You will be “retired” by others!
  - Cost: e.g., 4-8 hours scattered over a week
    - 10-20% (c.f. 30-60% as a domestic academic administrator)
  - A good researcher might not be a good editor!

# Part II: Experiences on Academic Research

# Why
## Academia vs. Industry

- Researcher vs. developer
  - Unknown exploration vs. problem solving vs. system building
  - Balance between R and D
    - Academia: R&d: d→R→D > R→d or D|R
    - Industry: D&r: D/r or D-r > D←R
- Degree of fun
  - Academia > industry
- Degree of risk/penalty if you screw up a piece of work
  - Academia << industry
- Long-term impacts
  - Academia > industry

# What
## Criteria vs. Impacts

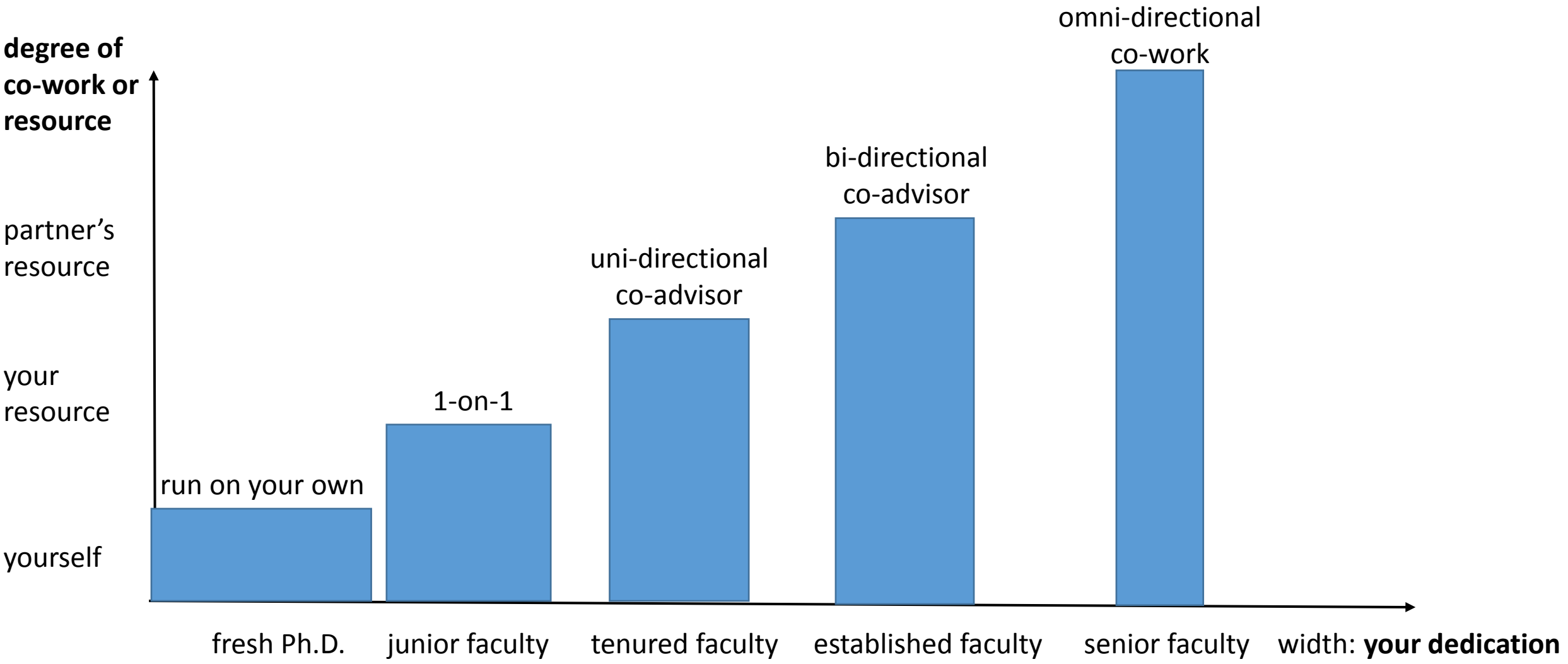
- Criteria
  - Books, especially textbooks
    - By global publishers
  - Top journals
    - IF (impact factor) > 1.5
  - Top conferences
    - Acceptance < 20%
  - Patents
    - US patents
  - HW/SW IP
    - Packages
  - Startups
    - > 2M USD

→ Basketball game

- Impacts
  - Written into a textbook
    - Undergraduate > graduate
    - Your grand son in college would say: *hey, this is my grandpa!*
  - Textbook world-wide market share
    - > 10%
  - Citations
    - > 100
  - Licensing
    - > 300K USD
  - Downloads
    - > 3000
  - Acquisition or IPO
    - > 50M USD

→ Football game

# When
## Independent vs. Co-Work



# How

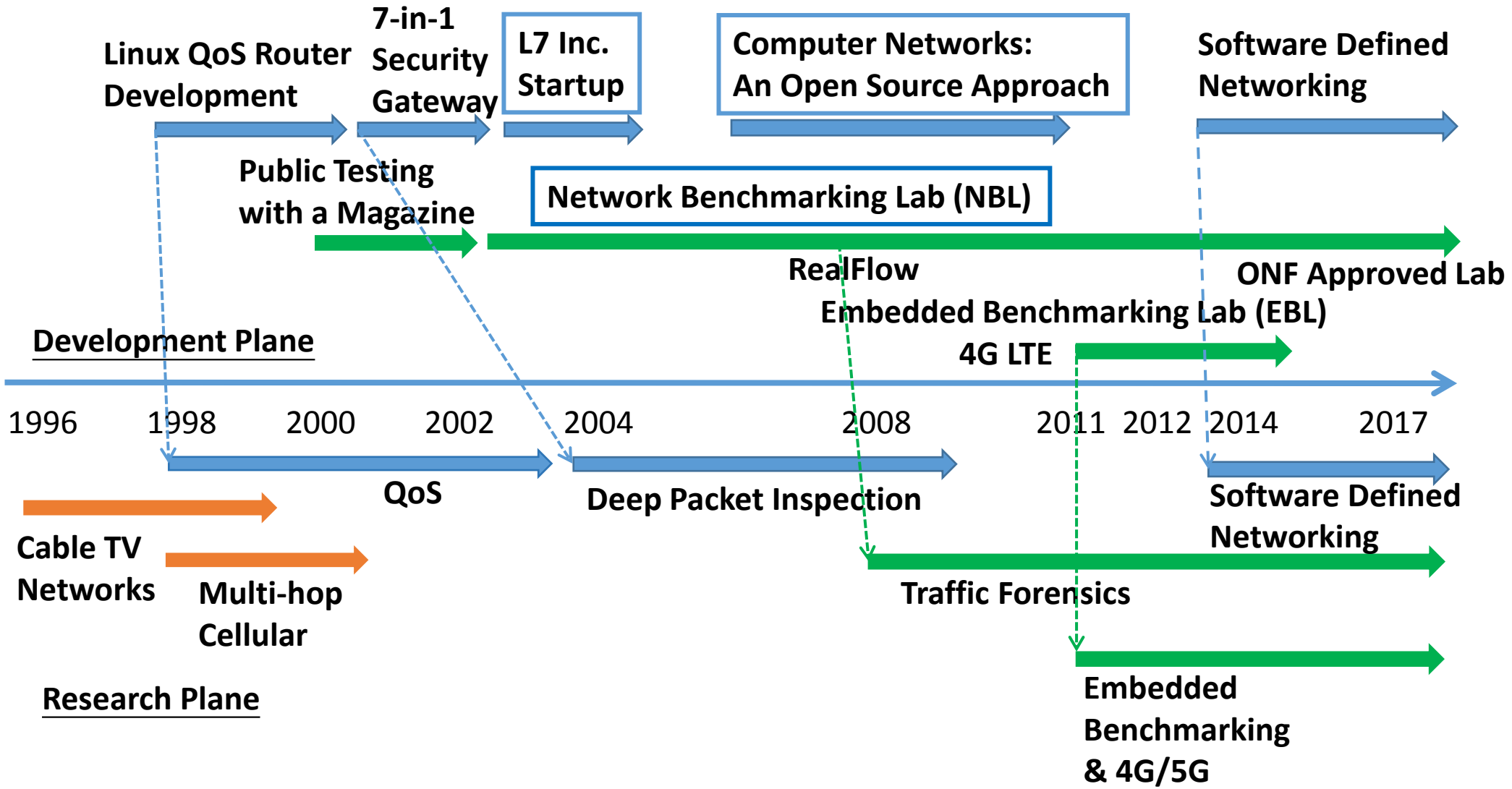
## From Proposal to Publication

| Stage | Objective | 1st-tier Behavior | 2nd-tier Behavior |
|---|---|---|---|
| Survey and/or Development | Problem identification | **New** problem identified | **Similar** problem copied |
| Proposal | Problem statement with inputs, constraints, objectives, and assumptions | **Formally** defined | **Loosely** defined |
| Solution & Evaluation | Significant effect | New result or **major** improvement | **Minor** improvement |
| Writing & Revision | Critical writing | **Tight** logic reasoning and clean grammar | **Loose** logic (how without why) and messy grammar |
| Submission & Resubmission | Acceptance | Major/minor revision → acceptance | Rejected → resubmission to 2nd-tier target |
| Getting Cited | Well cited | > 100 | < 10 |

# Sources of Research Topics

- Three sources
  1. Literature repository: minor improvement on existing or pseudo problems
  2. Development projects: feasible solutions on real problems
  3. Industrial discussions: real problems but not necessarily feasible solutions
- A problem well defined is a problem half solved.
  - A problem well defined has its impact half or almost determined.
- Mine: d → R → D
  - Enabling resource: Linux
  - *Research is the non-trivial part identified within the development process.*
  - *If I don't know how to develop it, I would not research on it.*
- My roadmap and footprints: cable TV networks (1996-1999) → multi-hop cellular (1998-2000) → QoS (1998~2003) → deep packet inspection (2004~2009) → traffic forensics (2008~) → embedded benchmarking (2011~) → software defined networking (2013~)

# My D&R Roadmap with Three Side Products



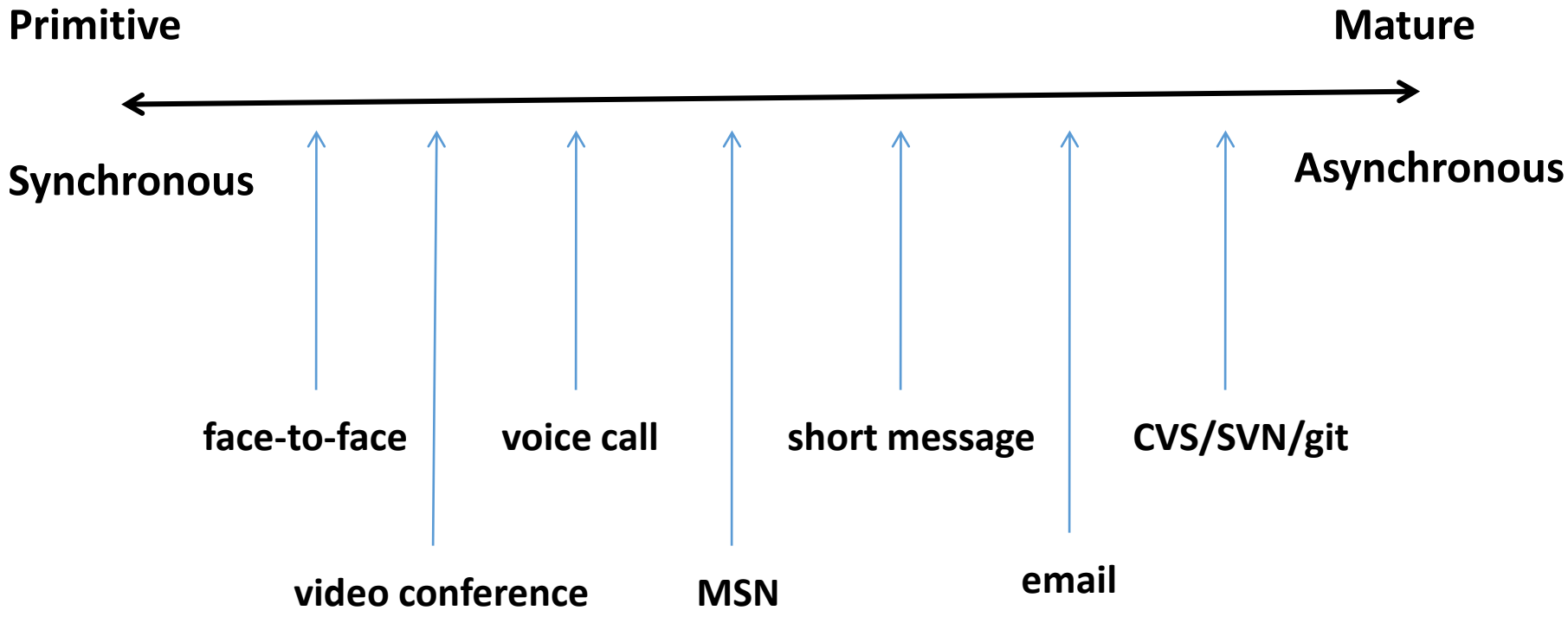
# NBL Staff

- Director + Executive Director + full-time engineers + students
- Operation model: 3-line

| Type | Analog | Who | Mission |
|---|---|---|---|
| Test Service ($1^{st}$ line) | Infantry | Mostly full-time<br>Some students | 1. Conducting tests<br>2. Writing test plans |
| Test Tool ($2^{nd}$ line) | Artillery | Some full-time<br>Mostly students | 1. Developing test tools<br>2. Licensing tools to vendors |
| Test Research ($3^{rd}$ line) | Supply | Professors and students | 1. Researching test methodologies on test beds<br>2. Researching product bottlenecks |

# Spectrum of Co-Work Models

## Synchronous vs. Asynchronous




- The most primitive co-work model: on-site face-to-face
- The 2nd most mature co-work model: email deep discussion
- The most mature co-work model: co-editing a program/document concurrently

# My Housekeeping: From Proposal to Publication

| | Title | Target for Publication | In-Charge | Coach, if any | Due/Submission | Patent/Conference |
|---|---|---|---|---|---|---|
| A. | in revision | | | | | |
| 1 | beta site design for IPv6/IPv4 co-existence | Journal of Internet Technology | Raghu | Prof. Hwang (黃仁竑) | accepted on 4/2/2013 | |
| 2 | behavior botnet detection in parallel | Security and Communication Networks | 蔡禮陽 | Prof. Huang (黃俊穎) | accepted on 9/5/2013 | |
| 3 | PCAP Lib: extraction, classification, anonymization | IEEE Systems Journal | 王聲浩 | Prof. PC Lin (林柏青) | accepted on 1/5/2014 | |
| 4 | proxy replay | Security and Communication Networks | 廖鵬宇 | Prof. Huang (黃俊穎) | accepted on 5/9/2014 | |
| 5 | live capture/replay on multi-port devices | IEEE Tx Network and Service Management | 林昱安 | Prof. PC Lin (林柏青) | accepted on 2/4/2014 | P: NCTU |
| 6 | SPAG-C: GUI test oracle /w accuracy, effi., reusabil | IEEE Tx Software Engineering. | Francisco | Prof. Chu (朱宗賢) | accepted on 6/11/2014 | P: NCTU |
| 7 | power consumption calibration | Journal of Network and Computer Applications | 尤云千/Ekarat | Prof. Chang 張立平 | accepted on 5/7/2014 | |
| 8 | research roadmap | Intl Journal of Networking and Computing | ydlin | | accepted on 5/18/2014 | |
| 9 | three-phase behavior-based detection/classification | Security and Communication Networks | 徐鵬凱/呂俊男 | Prof. Lai (賴源正) | accepted on 9/25/2014 | P1: NCTU |
| 10 | in-lab replay testing (ILRT), with SOHO routers | Journal of Internet Technology | 呂俊男 | Prof. Hwang (黃仁竑) | revised on 6/16/2014 | |
| 11 | traffic diversity vs. test coverage | Intl. Journal of Communication Systems | 邵俊賓 | Chun-Nan (呂俊男) | accepted on 8/4/2014 | |
| 12 | LTE data scheduling/eval under DRX, CQI, QoS | Computer Networks | 郭昱賢 | Dr Tung (童莉萍) | accepted on 10/6/2014 | c:ICNC 7/5; P |
| 13 | spacial reuse for LTE/WiMAX relay | IEEE Tx Vehicular Technology | 林政賢 | Prof. Hwang (黃仁竑) | accepted on 11/6/2014 | |
| 14 | malware behavior: fuzzy analysis | Security and Communication Networks | 蔡薰儀 | Prof. Huang (黃俊穎) | to revise on 1/16/2015 | |
| | | | | | | |
| B | submitted | | | | | |
| 1 | aligning comp. net. curriculum /w live running imp. | Communications of the ACM | Prof. Wang (王志強) | Prof. Hwang (黃仁竑) | to re-submit on 8/31/2014 | |
| 2 | WLAN replay: traffic & environment | IEEE Tx Vehicular Technology | 古佳育 | Dr Kate Lin (林靖茹) | to re-submit on 1/5/2015 | c:WCNC12; P |
| 3 | three-phase behavior-based for Android malware | Computers & Security | 張育妮 | Prof. Huang (黃俊穎) | re-submitted on 11/6/2014 | P: NCTU |
| 4 | 2-tier project/job scheduling in clouds | Journal of Network and Computer Applications | Tuan | Prof. Wang (王志強) | to revise on 12/6/2014 | P: NCTU |
| 5 | Dynamic DRX | Wireless Networks; IFIP WD'14 | Syama | Krishna Sivalingam | to re-submit on 10/31/2014 | ICC'14 |
| 6 | energy /w non-linearity, asynchrony, hetrogenity | ACM Tx Embedded Computing Systems | Ekarat | Prof. Chu (朱宗賢) | re-submitted on 10/15/2014 | P: NCTU |
| 7 | DRX modeling | IEEE Comm. Letters | Syama | Krishna Sivalingam | to re-submit on 10/31/2014 | |
| 8 | PCT and IOT in LTE | JCOMSS, APWCS'14 | 梁雲豪 | Dr Tung (童莉萍) | re-submitted on 6/1/2014 | |
| 9 | smoothness QoE for touchscreen GUI | Human-Computer Interaction | 溫倩芩 | Prof. Chu (朱宗賢) | to re-submit on 10/31/2014 | |
| 10 | intercepting bytecode in Dalvik VM | Journal of Systems and Software | 張尚揚 | Prof. Chang (張貴忠) | to re-submit on 12/31/2014 | |
| 11 | classification: packet size sequence vs. distribution | IEEE Tx Network and Service Management | 呂俊男 | Prof. Huang (黃俊穎) | to revise on 11/30/2014 | |
| 12 | modeling n-ary binary/ternary/continuous filters | IEEE Tx Dependable and Secure Computing | Sakib | Prof. Huang (黃金澤) | submitted on 10/1/2014 | |
| 13 | extended SDN /w SC and NFV | IEEE Network (SI on NFV) | 葉治宏 | Prof. PC Lin (林柏青) | submitted on 10/15/2014 | |
| | | | | | | |
| C. | revising for submission | | | | | |
| 1 | fast failover and switchover in multipath SDN | Journal of Network and Computer Applications | 許珈榮 | Dr Deng (鄧鴻毅) | 11/19/2014 | P: NCTU |
| 2 | LTE Wi-Fi offloading | Wireless Networks (Springer) | 梁雲豪 | 古佳育 | 12/22/2014 | |
| 3 | GUI smoothness /w motion prediction | IEEE Tx Human-Machine Systems | 張翊帆 | Prof. Chu (朱宗賢) | 10/10/2014 | |
| 4 | smartphone evaulation | IEEE Pervasive Computing | 張尚揚 | ydlin | 10/31/2014 | |
| | | | | | | |
| D. | writing up | | | | | |
| 1 | MIMO OTA testbed | IEEE Wireless Communications | 古佳育 | ydlin | 12/29/2014 | |
| 2 | multi-channel mesh | IEEE Tx WC or Wireless Networks (Springer) | 古佳育 | ydlin | 1/19/2014 | |
| 3 | zoom-in power estimation on multi-core CPU | IEEE Embedded Systems Letters | Ekarat/林金宏 | Prof. Chu (朱宗賢) | 10/31/2014 | |
| 4 | SDN: a tutorial on std., dev., testing | IEEE Comm. Surveys & Tutorials | 汪建廷 | Dr Deng (鄧鴻毅) | 12/15/2014 | |
| 5 | app classification HW with pkt size seq.& dist. | IEEE Comm. Letters | 呂俊男 | ydlin | 1/31/2015 | |
| | | | | | | |
| E. | on-going works | | | | | |
| 1 | semi-online power estimation for smartphone subs. | VTC, ACM Tx Embedded Computing Systems | Ekarat | Prof. Chu (朱宗賢) | 11/15/2014 | |
| 2 | hybrid SDN: modeling and optimization | IEEE Tx Network and Service Management | Binayak | Prof. Wu (吳曉光) | 1/31/2015 | |
| 3 | a campus SDN solution for Wi-Fi/switch | IEEE Computer | Dr Deng/許郡泓 | ydlin | 11/15-31/2014 | |
| 4 | modeling/comparing femto/relay small cells | IEEE Tx Wireless Communications | Dr Deng (鄧鴻毅) | 陳震宇,黃仁竑 | 9/15/2014 | |
| 5 | browser fuzzing for APT vulnerabilities | | 廖鋒澤 | Prof. Huang (黃世昆) | 1/7/2015 | |
| 6 | SDN multicast by controllers across domains | | 廖俊傑 | Dr Deng (鄧鴻毅) | 1/7/2015 | |
| 7 | SDN service chaining and traffic steering /w NFV | | 吳政穎 | Dr PC Lin (林柏青) | 1/7/2015 | |
| 8 | SDN inter-domain controller architecture | | 陳斯杰 | Dr Deng (鄧鴻毅) | 1/7/2015 | |
| 9 | Wi-Fi load balancing in SDN | | Jessie Lu | 楊錫昌 | 1/7/2015 | |
| | | | | | | |
| F. | proposals | | | | | |
| 1 | cross-layer user behavior analysis for Android | | 張尚揚 | Prof. Chang (張貴忠) | proposal: 11/30,written: 1/31/15 | |
| 2 | power saving configuration for Android | | 張尚揚 | Prof. Chang (張貴忠) | proposal: 3/1,written: 7/31/15 | |
| 3 | femto/relay sleep control for power saving | | Patrick 東華 | 鄧鴻毅,陳震宇 | 10/31/2014 | |
| 4 | SDN App Store: service initiation | | 汪建廷 | ??? | proposal:11/30 | |
| 5 | SDN security as a service: legacy service mapping | | 周業捷 | ??? | proposal:11/30 | |
| 6 | SDN NFV QoS: allocation and scheduling | | Tuan | ??? | proposal:11/30 | |
| 7 | SDN network QoS: multi-path load balancing | | 王耀駿 | 朱煜煌 or 張貴雲 | proposal:11/30 | |
| 8 | SDN-enabled Wi-Fi: seamless roaming | | 楊錫昌 | Prof. Hwang (黃仁竑) | proposal:11/30 | |

# Some Common Difficulties and Possible Solutions

1. Never gave problems to students? Asked students to find from literature? (Students have no sense on the value of problems. They copy/revise problems.)

   → Spend much more time with students to discuss problem statements.

2. Confusion of students
   - Can't tell R from D (new MS)?
   - Can't differentiate solution from problem (1st-year MS)?
   - Can't separate implementation from design (2nd-year MS)?

   → Provide more real examples.

3. Poor student disciplines in analysis (paper reading), organization (paper/program writing and presentation), and creativity (idea forming)?

   → If 70, train to 80. Give an indep study, SOPs, and examples. If 60, give up.

4. Low hit ratio (publication ratio) of MS thesis works?

   → Set a series of checkpoints (pre-proposal, proposal, algorithm, numerical results, outline, ch1, ch2, …, complete draft, revised draft, dry run); find them good coaches.

5. Poor management and housekeeping by yourself?

   → Learn time/work management skills

# How to Graduate Your Students On Time

- Draw a time line with them and create peer pressure
  - M.S.
    - Independent study (before enrollment) → development (1st year) → pre-proposal → proposal (problem statement & survey) → algorithm confirmed → result obtained → thesis outline → ch1 → …. → ch7 → revision → oral exam → graduation ceremony → thesis filed
  - Ph.D.
    - Ph.A. (admitted) → Ph.B. (qualifying exam) → Ph.C. (proposal) → Ph.D. (defense)
    - Target conference and journal SI
- Manage them if they cannot manage themselves
  - Let them manage themselves if they can
- Disciplines vs. innovations
  - Training vs. inspiring
  - Reading/writing/presenting/programming/specification/English/math/domain knowledge/methodologies vs. thinking/discussion/dreaming
  - Paper engineering: 1st half (innovations) vs. 2nd half (disciplines)
    - Find a coach

# How to Campaign for IEEE Fellow?

- "Entry" criteria
  - IEEE Senior Member
  - Technical contribution track
    - Citations of top 5 papers > 500 (on google scholar), depends on society
  - Service contribution track
    - Led large renown organizations
- Team of a dozen
  - 1 nominator
  - 3 endorsers (they don't score you; no need to be fellow themselves)
  - 8 referees (they score you; must be fellow themselves)
  - Geographically and racially distributed, but preferably in your Society
  - Invited partially by you and partially by your nominator
- Elevation ratio: 1/3 (300/1000 across all societies)
  - Upper bound on "quota" per year: 0.1% of all members
- Usually more difficult in larger societies (Computer > Communications > ….)
  - Often they don't use up quota.
- Due on March 1 each year, on-line submissions by your team
  - Filtering by society Fellow Committee first, and then headquarter Fellow Committee
  - Announced in mid Nov. to early Dec., leaked in Oct.

# Lessons Learned (1/3)

- Equip oneself with a full capability Set
  - Analysis: paper survey, program tracing, formula derivation
  - Organization: paper writing, presentation, program writing
  - Creativity: ideas, solutions, algorithms, models, etc.
  - Good analysis and creativity, but poor organization → difficult to get your paper accepted in a top conference/journal
    - What I've seen as an associate editor….
- Optimize one's work model
  - Priority queueing: foreground jobs vs. background jobs
  - Quality control: the 90-80-70 rule of thumb
  - Focused vs. de-focused: research >> teaching & service
  - Peer pressure: intra-group and inter-group
  - Co-work model: asynchronous vs. synchronous

# Lessons Learned (2/3)

- Development vs. research
  - R only, R→D, D→R, or parallel R&D?
  - Front line (D) → back line (R), D first then R
  - Industry: D&r, academia: R&d
    → grow r in industry & d in academia!
  - Good balance between D & R: but not in ComSoc
- NBL experiences
  - Duplicating others (e.g. UNH/IOL) has no value.
  - Real traffic testing is indeed unique.
  - 3rd-party lab only for 2nd-tier vendors?
    - Large/small projects with large/small vendors
- Research roadmap vs. random picks
  - A series of works with deeper understanding
  - But random picks have their chances (off-road)
- Publication strategy
  - Conference-driven vs. journal-driven: travel budget
  - Time-to-publish
  - Journals vs. magazines

# Lessons Learned (3/3)

- Academic services vs. academic cooperation
  - Editorial boards, special issues, program committees, technical committees
  - Extra effort for new thoughts and resources
  - Research: collaboration > work alone
- Impacts
  - Evolution path: papers → top conference/journal → SCI → IEEE → citation (H-index), licensing, downloads, startups
  - (new problem, old solution) > (old problem, new solution)
  - A work with high impact on the industry might not have high impact on the academia, and vice versa.
  - A high-impact paper might be rejected in its early version.
  - Many papers in top journals or conferences have low impact eventually. The review process can screen regarding *quality* but usually not *impact*.
  - Keep a few of your favorite problems in your mind and review them with new inputs.

# Skills Learned

1. How to campaign for IEEE Fellow?
2. How to run a special issue?
3. How to serve as an editor, TPC member, TPC co-chair, TC member?
4. How to serve as a distinguished lecturer?
5. How to host or visit a renown scholar?
6. How to train a new student?
7. How to co-work remotely and internationally?
8. How to coach students of others?
   - How to have your students coached by others?
9. How to find research partners?
   - People vs. subject
10. How to find your sabbatical “paid” job?

# More to Learn

1. How to organize the logistics of a “big” conference?
2. How to cook and launch a “new” journal, magazine, or conference?
3. How to campaign in the “election” of TC chair, BoG, VP, and president?
   - How to campaign in the “appointment” of EiC and director?
4. How to apply and run an international research “project”?
5. How to run an edited book with chapter contributions?
6. How to select great-impact topics?
7. How to clock Ph.D. students faster?

# Final Remarks

The objective of life is just like calculus. At first you differentiate once to maximize your chance of survival.

Then, if you are lucky enough, you differentiate twice to pursue fame or cash.

And then, if you are civilized enough, you differentiate three times to evolve your objective to impact or fun.