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## 2023 UASG Elections Nomination for Chair

2023-04-04

Name: Haixin Duan

Bio/Statement of Interest:

Prof. Haixin Duan received his Ph.D in Computer Science from Tsinghua University in 2001, and currently leads the Network and Information Security Lab at the Institute for Network Sciences and Cyberspace of Tsinghua University. He has been a visiting scholar in UC Berkeley and worked as a senior scientist for the International Computer Science Institute (ICSI) in Berkeley, California.

For over 30 years, Prof. Duan has focused his teaching and research on network security and network measurement, with particular emphasis on DNS security, Email Security and Web Security. He and his team have discovered numerous security vulnerabilities in fundamental Internet security protocols, including DNS, HTTP and HTTPS. Their research has led top Internet service vendors or open-source organizations such as Google, Apple, Microsoft, CloudFlare, Apache, ISC, Squid to update their software and applications, improving the security of Internet infrastructure. Most of Prof. Duan's research has been published in top network or security conferences such as ACM/SIGCOMM, Internet Measurement Conference, IEEE Symposium on Security and Privacy, ACM/CCS, USENIX Security, and NDSS.

Related to acceptance of domain name and email address, Prof. Duan and his team have invested significant efforts into Internationalized Domain Names (IDN) and the security issues in IDN implementations in email services. In their paper, "A Reexamination of Internationalized Domain Names: The Good, the Bad and the Ugly" [1], they conducted a comprehensive measurement study

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using 1.4 million IDNs discovered from 56 TLD zone files. Their research showed that although IDNs were actively registered under over 700 registrars, particularly in East Asia, many were being abused. They also identified thousands of malicious IDNs attempting to spoof reputable brand domains (e.g., apple.com). In their research on email security [2], they discovered that many mainstream email services or applications, including Gmail and iCloud, were vulnerable to IDN homograph attacks. Prof. Duan believes his research can contribute to the proper acceptance and correct implementation by all internet service vendors.

Throughout his research, Prof. Duan has established wide connections with many top internet vendors, particularly in China, including Alibaba, Tencent, Baidu, 360, Qi-An-Xin (top security vendor in China), and Coremail (the top email service vendor in China). Together with these vendors, prof. Duan has chaired DataCon [3], the largest data security competition for 4 years, with topics including domain name abuse and email spoofing. Thousands of graduate students and researcher in top universities and hi-tech companies have attended these contests.

As the co-founder of International Forum for Network Security Research (InForSec) [4], the academic community for network security researchers, Prof. Duan has organized more than one hundred of conferences, workshops, or seminars. The speakers at InForSec forums come from both academia and industry worldwide. Some online conferences have attracted more than twenty thousand attendees, including participants from universities, companies, and governmental organizations. InForSec has organized three forums on domain name and Internet governance together with ICANN community in China over the past three years.

Prof. Duan shares ICANN's Internet governance value, particularly the Multistakeholder Model. He and his colleague translated the classical book, "Ruling the Root" (By prof. Milton L. Mueller) [4] into Chinese. He has also authored some widely circulated articles online that have clarified misconceptions about the history of Internet governance among Chinese readers and ICANN Chinese communities.



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Prof. Duan hopes to join UASG as one of the vice chairs. Leveraging his expertise, especially in DNS, Email and network security, as well as his connections with top internet service vendors, he believes he can establish a bridge between the academia and industry to promote the adoption and proper implementations of valid domain and email addresses.

Prof. Duan, as vice chair, would have more opportunities to communicate with Internet governance organizations, enabling him to learn about the requirements and challenges in the domain and email ecosystems. By collaborating with his colleagues in academia, he can gather more researchers dedicated to researching problems related to the acceptance of domain names and email addresses. Additionally, by organizing activities such as the DataCon contest and InForSec forum, Prof. Duan can impact internet service providers and application developers to improve the acceptance of valid domain names and email addresses.

Furthermore, Prof. Duan can conduct large-scale measurement and testing research on the adoption and implementation of IDN and EAI by popular Internet service providers, as he and his team did with DNS encryption adoption [6] and GDPR privacy policy compliance [7]. With the test results, he can organize exchange activities for vendors and developers to promote the correct implementation of IDN and EAI.

Prof. Duan will also participate in and organize global UA activities in collaboration with the chair of UASG and other colleagues. He can visit top Internet service providers, especially in China, to encourage the adoption of IDN and EAI.

In summary, with his expertise and research experience in network security and his wide connections in the Internet industries, Prof. Duan believes he can make significant contributions to the universal acceptance if he is selected as the vice chair of UASG.



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- [3] DataCon, the largest Data Security contest in China, <https://datacon.qianxin.com/home>
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