



Xiongwen He, CCSDS SOIS DAD
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| <p>Main Achievement</p> | <p>Xiongwen He is currently Deputy Area Director (DAD) of Consultative Committee for Space Data Systems (CCSDS) Spacecraft Onboard Interface Services (SOIS) area, Deputy Director of Department of Manned Lunar Exploration System Engineering, Beijing Institute of Spacecraft System Engineering (ISSE), CAST.</p> <p>He has been doing research on CCSDS standards for more than 16 years, who is very familiar with CCSDS areas, especially SOIS area, Space Link Services (SLS) area, Space Internetworking Services (SIS) area and System Engineering. After years of research, he finally led his team to propose a service and protocol architecture, integrating many services and protocols from different CCSDS areas together with European Cooperation for Space Standardization (ECSS) and Internet Engineering Task Force (IETF) standards, including Telecommand(TC) Space Data Link Protocol(SDLP), Advanced Orbiting System (AOS) SDLP, Space Packet Protocol (SPP), IP, IP over CCSDS, Encapsulation Service (ES), TCP,UDP, Asynchronous Message Service (AMS), Packet Service (PS), Memory Access Services (MAS), Message Transfer Service (MTS), Device Data Dooling Service (DDPS), Data Access Service (DAS), Device Virtualization Service (DVS), Time Access Service (TAS), Packet Utilization Services (PUS),etc. With his leadership, the service and protocol architecture has been tailored and used in many Chinese spacecrafts, including Navigation Constellation, Manned Lunar Exploration, TG-1 Space Lab, small satellites, remote sensing constellation, etc. which greatly increased the standardization and functions of these spacecrafts and built the foundation for future space-terrestrial internetworking.</p> <p>In order to facilitate to selection of protocols in the service and protocol architecture, he has led a team and developed a space network semi-physical simulation and evaluation platform, which can support the space network topology simulation, CCSDS and IETF protocols simulation, network performance evaluation, etc.</p> <p>With his leadership, a flight software architecture named “FUHSI” and more than 30 software components corresponding to the standards in the service and protocol architecture have been developed, which not only increased the functions of spacecrafts but also greatly increased the onboard software reusability by 5 times. “FUHSI” is now documented in a CCSDS orange book “CAST Flight Software as a CCSDS Onboard Reference Architecture”, edited by him and to be published in 2021.</p> <p>Besides, he has also been in charge of many national projects related to CCSDS, leading his team to develop a lot of products related to CCSDS standards, such as</p> |
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| | <p>space router, onboard computer, onboard switcher, onboard software components, etc. Many of the products has been used onboard Chinese satellites. He published a book named “Space Data System” as a main co-author in 2018. He has been involved in developing 12 standards on space data system in China, owned 15 patents and published more than 40 papers related to space data system and CCSDS. Based on his great achievements in CCSDS, he has been invited to give lectures for more than 10 times in a lot of technical conferences these years and received a lot of awards.</p> <p>In conclusion, with his leadership and rich experience in CCSDS areas, he is highly qualified to fulfil the responsibilities of the CESG Deputy Chair.</p> |
| <p>Positions in Academic Groups</p> | <ul style="list-style-type: none"> ● 11,2016~now, Deputy Area Director, CCSDS SOIS Area ● 01,2019~now, Committee Member, Sub-Technical Committee for Space Data and Information Transfer, Technical Committee for National Space Technology and its Standardization ● 08,2019~now, CAST Chief Representative of CCSDS ● 03,2021~now, Executive Chair, Academic Committee of 7th National Conference on Space Data System (NCSDS) ● 01,2021~now, Chair, Workshop on Integrated Space and Onboard Networks (ISON) to be held at 12th International Conference on Wireless and Satellite Systems (WiSATS) ● 01,2021~now, Editorial Board Member, The Journal of Next Generation Information Technology. ● 01,2020~09,2020, Chair, Workshop on ISON to be held at 11th WiSATS ● 08,2019~01.2019, Chair, Workshop on ISON to be held at 10th WiSATS ● 07,2019~10.2019, Executive Chair, Academic Committee of 6th NCSDS ● 04,2019~07.2019, Chair, Workshop on ISON to be held at 8th International Conference on Communications, Signal Processing, and Systems (CSPS) |
| <p>Work Experience</p> | <p>2020.9~now Deputy Director/Professor, Department of Manned Lunar Exploration System Engineering, ISSE, CAST</p> <ul style="list-style-type: none"> ● Project leader, in charge of designing Chinese Manned Lunar Exploration network and protocol architecture, combining CCSDS, ECSS and IETF standards. ● Project leader, in charge of designing Chinese Space-Terrestrial Internetworking protocol architecture, combining CCSDS and IETF standards. ● Project leader, in charge of designing onboard intelligent highspeed handling and networking system. <p>2019.1~2020.9 Chief Engineer/Professor, Department of Electronic and Information(DEI), ISSE,CAST</p> <ul style="list-style-type: none"> ● Project leader, in charge of designing Chinese remote sensing constellation network and protocol architecture, using CCSDS standards. ● Project leader, in charge of designing Chinese next generation navigation constellation network and protocol architecture and related standard system. ● Project leader, in charge of designing a Chinese small remote sensing satellite avionics system, using CCSDS and ECSS protocols and FUHSI. <p>2017.1~2019.1 Deputy Director/Professor, Laboratory of Electricity and Information, DEI,ISSE,CAST</p> |

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| | <ul style="list-style-type: none"> ● Project leader, in charge of editing CCSDS Orange book “CAST Flight Software as a CCSDS Onboard Reference Architecture”. ● Project leader, in charge of designing Chinese generation navigation constellation protocol architecture. ● Project leader, in charge of designing integrated space and onboard networking architecture and the related products such as onboard computer, onboard TTE switcher, space router, onboard software components, with many CCSDS protocols implemented. ● Project leader, in charge of developing space network semi-physical simulation and evaluation platform, with a lot of CCSDS protocols implemented. <p>2008.9~2017.1 Senior Engineer/ Engineer, Department of Electronic Engineering (DEE), ISSE,CAST</p> <ul style="list-style-type: none"> ● Project leader, in charge of designing service and protocol architecture, integrating many services and protocols from different CCSDS areas together with ECSS and IETF standards. ● Project leader, in charge of designing and implementing flight software architecture FUSHI, corresponding to the service and protocol architecture. <p>2006.2~2011.9 Engineer, DEE , ISSE, CAST</p> <ul style="list-style-type: none"> ● Software designer, in charge of designing and implementing TG-1 manned laboratory software of onboard computer. ● Protocol designer, in charge of designing telecommand protocol of TG-1 manned laboratory. |
| Honor | <ul style="list-style-type: none"> ● Youth top talent of China Aerospace Science and Technology Corporation in 2018 ● Advanced Individuals in Technology Innovation of CAST in 2017 ● Technology Innovation Award of ISSE in 2017 ● Young Post Experts of CAST in 2016 ● Advanced Individuals of CAST in 2016 ● Outstanding Staff of ISSE in 2016 ● Advanced Individuals of CAST in 2014 ● Outstanding Staff of ISSE in 2014 |